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ABSTRACT

This guide provides a comprehensive method for measuring the quality and educational effectiveness of school facilities and may be used to perform a post-occupancy review; to formulate a formal record; to highlight specific appraisal needs; to examine the need for new facilities or renovations; or to serve as an instructional tool. Suggestions are made for developing a facilities report. New trends in design and construction are summarized. Appraisal criteria are categorized into six areas: (1) the school site; (2) structural and mechanical features; (3) plant maintainability; (4) school building safety and security; (5) educational adequacy; and (6) environment for education. Non-technical language is used so that the appraisal process can be accomplished by educators and community leaders as well as technical experts. A glossary of terms is included, as well as a bibliography with 32 references. Three appendices offer guides to independent appraisal of elementary, middle school, and high school facilities. (JM)

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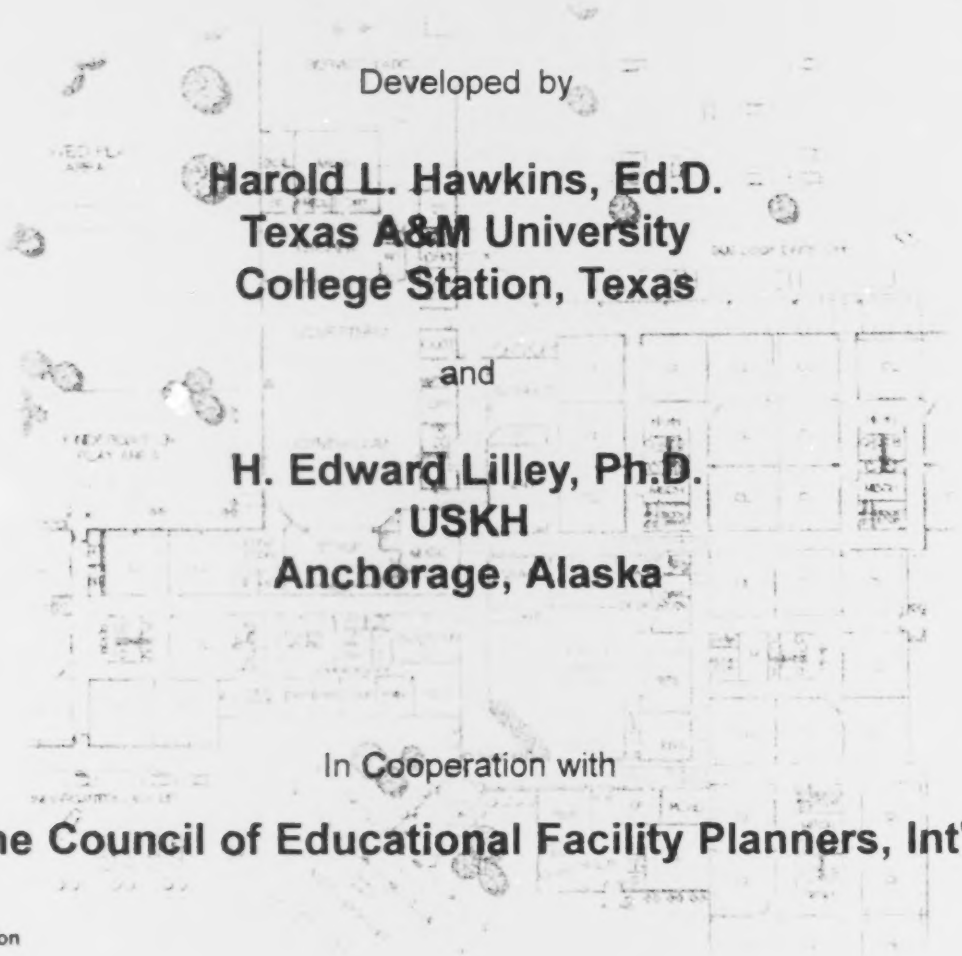
Guide for School Facility Appraisal

1998 Edition



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The Council of Educational Facility Planners, Int'l

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Acknowledgments

The authors wish to acknowledge the assistance of the thirty members of the Council of Educational Facility Planners, International who reviewed the initial appraisal instruments. The criteria, the instrument items, and the allocated weights have been validated to the extent possible by the expertise of these qualified authorities in facility planning. Any deficiencies or shortcomings in the present materials result from the authors' judgment rather than that of the individuals who aided in the validation process.

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H.L.H.

H.E.L.

About the Authors

Harold L. Hawkins, Ed.D. has served education as a teacher, superintendent of schools, university department head, and professor of educational administration. Currently he is a Professor Emeritus at Texas A&M University, College Station, Texas. As a school administrator in Michigan, New York State, and the Department of Defense schools in Spain, he participated in the planning of many new schools. For over twenty years, he taught graduate students the planning and appraisal of educational facilities. As part of his research in facility planning he has visited and conducted in-depth observation in schools in Israel, Japan, and the People's Republic of China. During 1991-1992 he served as President, Council of Educational Facility Planners, International.

H. Edward Lilley, Ph.D. grew up in an atmosphere of the building trades and has worked as a carpenter, plumber and electrician. He has a doctoral minor in Architecture. His professional career includes teacher, principal and regional superintendent in public schools. In higher education, he was a professor of educational administration at West Virginia University where he held major responsibility for teaching the Administration of Educational Facilities for twenty years. Currently, Ed is the Director of Educational Programming at USKH, Inc. in Anchorage, Alaska. He is widely published in national and international journals, has served several times as issue editor and has chaired the Editorial Board for The School Planner. He served on the Board of Directors and is a Past President of CEFPI.

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Introduction

The *Appraisal Guide* was developed initially in 1986 to meet the need for a comprehensive method for measuring the quality and educational effectiveness of school facilities. The *Appraisal Guide* was developed with the assistance of educational facility planners in the United States and Canada. Graduate students in several universities assisted in pilot testing the materials.

The appraisal criteria are categorized into six areas: The School Site; Structural and Mechanical Features; Plant Maintainability; School Building Safety and Security; Educational Adequacy and Environment for Education. The appraisal instruments are adapted for use at each of the three educational levels; elementary, middle, and high school. To the extent possible, non-technical language is used throughout so that the process of appraisal might be accomplished by educators and community leaders as well as by the technical experts in school facilities. Persons using the instruments need a general knowledge of the educational program, the operation of a physical plant, and the state/national standards for educational facilities.

The appraisal process achieves appropriate reliability through the development of a team consensus for each of the items. Training and initial experience in appraisal of facilities has led to team consistencies well within the 10% range of variance.

The items in the instruments are designed to be generic to the three educational levels. With some slight variations in the wording, the items are identical within the three instruments. At the elementary level the maximum weight given to an academic classroom is higher than at the middle school and high school levels. More weight is given, however, to special learning spaces at the secondary level than at the elementary. The instruments reflect more accurately the differences in the educational program and needs at the three levels of instruction.

The 1998 edition of the Appraisal Guide includes several improvements and updates. These are:
- Reduction and revision of many of the items in the instrument.
- Changes in space standards.
- New materials on the Americans with Disabilities Act (ADA).
- Format changes in recording and reporting of appraisal scores.
- Placement of the Table of Weights and Categories at the bottom of each page in the instrument.

Persons taking part in a comprehensive school facility appraisal often say they will never again look at a school building in the same way they did prior to that experience. Features or conditions often previously overlooked become readily apparent.

If used to highlight only strengths or weaknesses and make recommendations, an acceptable method of using the appraisal materials is to have a team of consultants thoroughly familiar with the Guide train the principal and/or local administrators in its use. The local administrator(s) could then conduct the appraisals. However, if the Guide is to be used to compare facility qualities and more validity is needed, a well-trained team including at least one educator, one engineer, architect or construction program manager, and one district administrator should be used.

Use of the Appraisal Guide

To Perform a Post-Occupancy Review

It is customary for architects and school district administrators to assess the adequacy of a new structure after it has been in use for a brief time -- six months to a year. Such a review attempts to determine, for example, which of the design features function as intended. Also, it is essential to determine if the physical plant adequately serves the instructional program. The review should determine if construction materials are displaying any problems of maintainability. If the post occupancy review focuses as it should, on the congruence between the users' needs and the characteristics of the new structure, the instruments in the Appraisal Guide will serve a useful purpose. Increased emphasis should be given to post-occupancy review of all new construction.

To Formulate a Permanent Record

Superintendents of Buildings and Grounds, especially in larger school systems, are often expected to maintain files that will provide definitive information about each building under their responsibility. The careful completion of the Appraisal Guide, even when done by one person, will provide a useful administrative record and at the same time reveal correctable problems that may have been previously overlooked. Annual appraisals over four or five years by local administrators is a good plan. A consulting team might then be asked to return and identify and correct bias or mistaken ratings. The profile of early appraisal placed consecutively on transparencies will provide trend information on facility deterioration or inadequacy due to program changes. In this way the administration can plan, well in advance, the need for remodeling or replacement based on its own minimum scales.

To Highlight Specific Appraisal Needs

Although the Appraisal Guide is a comprehensive instrument, it can be used for specific appraisal needs. The School Site criteria, for example, may be utilized separate from the total guide for rating an existing site or for the consideration of new site acquisition. The School Building Safety section also may be used for a specific analysis of the safety features desired in every school building. Because the review of safety conditions is an important continuous need for school personnel, the Guide was designed so that school safety could be a separate consideration rather than intermingled with all portions of the Guide. Likewise, other sections of the instrument can serve specialized needs of a school system.

To Examine the Need for New Facilities

The use of the Appraisal Guide by a citizens committee (along with school personnel) can be an essential preliminary step to the development of a new school building program. The degree of building obsolescence can be dramatically presented through the format of the completed appraisal. The appraisers themselves can be helpful advocates in the community to explain existing inadequacies. In the development of plans for new construction, the criteria and instruments may serve as a useful tool in the development of Educational Specification for a new school.

To Evaluate the Need for Renovation

With school enrollments beginning to stabilize and/or the problem of population shifts, some school districts are no longer in need of new schools to meet growth conditions. In the future the trend toward school renovation may be expected to increase. The Appraisal Guide can serve as a useful tool in determining the feasibility of remodeling the building as a means to better serve the program needs. Buildings that are appraised as Satisfactory or Borderline may be appropriate for careful study in terms of renovations rather than abandonment.

To Serve as an Instructional Tool

An effective method of teaching about the school plant is to utilize field-oriented experience. University classes wishing to bring students into direct consideration of the relationship between school facilities and the instructional program will find the Appraisal Guide and the appraisal process a useful and challenging instructional tool. The criteria provide a range of school building factors which serve as appropriate instructional material for graduate students in educational administration and architecture. The group activity of facility appraisal can stimulate and motivate students in a manner not found with other instructional modes.

Developing a Facilities Report

Purpose of Report

Regardless of the reasons for facility appraisal, a final report should be developed to help administrators and board members make decisions regarding the future of the specific facility. The data must be presented in a format that is easily read, both as a composite and in its separate parts. Information must be presented accurately and clearly for all readers. Summaries may be located at the beginning of various sections, and composite data may be placed into graphs for easy reference. More important findings may be listed as "Strengths and Weaknesses" for each section and specific "Recommendations" may be listed either by section or for the entire facility.

Contents of the Report

Each report should include information that justifies its validity, the process utilized in deriving conclusions, data and conditions of appraisal, description of facility purposes, findings of appraiser(s), recommendation and pertinent bibliographic data. A suggested outline is presented for consideration. With slight variation, it could be used for a final report for any of the six uses of the Appraisal Guide listed previously.

Suggested Outline

I. *Forward*	Identify facility, instrumentation and purpose
II. *Appraiser(s)*	Qualifications (of each)
III. *Setting*	Location, community description, educational setting, program desired (including district and school philosophies, curriculum, etc.)
IV. *Appraisal*	Summary Graphs Six Sections: Summary Statement Criteria (State and National Sources) Findings (Strengths and Weaknesses) Appraisal Form Recommendations (Prioritized)
V. *Conclusions*	Composite Recommendations (i.e., closure or redefined usage)

Consensus Required

When more than one person is involved in the appraisal process, consensus is required on each item of the appraisal guide and on the contents of each statement contained in the final report. This can only be accomplished through group reading and discussion of the report, section by section.

Trends in Design and Construction

The *Guide for School Facility Appraisal* has been developed for use with a wide range of educational facilities. Its versatility is an asset, but its application to older buildings as well as new sometime causes questions of interpretation of standards and conditions. It may be helpful to keep in mind current trends that are affecting the acceptable range of quality conditions in school buildings. The following commentary presents a partial listing of trends.

The Interface Between Facilities and Learning

During recent years most educators have begun to acknowledge that the building and the physical environment have a potential to affect student learning. The Interface Project, directed by Harold L. Hawkins, at Texas A&M University, has utilized the contributions of a national task force to increase the awareness of the educational importance of the physical structure.

In a similar vein, the American Institute of Architects Committee on Architecture for Education has conducted research on the manner in which the building contributed to effective learning. That important research has been under the leadership of Gaylaird Christopher, AIA.

The bottom line in the evolution of school buildings is, as perceived in terms of today's education as well as for the 21st century, "How does the total building share in the process of learning?" The criteria and the appraisal instruments in this publication reflect this significant interface.

Gross Square Footage to Determine Building Capacity

New forms of instruction require greater amounts of space than in the past. Special education, remedial classes, cooperative learning, interactive video, laserdisk and computer instruction, and community participation all create spatial requirements that differ from earlier periods of education. Additional space requirements also result from the new demands of computer controlled HVAC and lighting systems, plus control space for computer servers, communications and video downlink and uplink units.

In addition, extra space is required for things such as heat exchange units for energy savings in northern climates in order to meet the 1997 UBC standards (Sec 1202.2.1) requiring 15 CFM of fresh outside air per occupant for all student-occupied areas of a school. One of the measurements for size of schools is gross square footage — the total amount of space within exterior walls. The gross square footage can be used to determine building capacity with this formula: total building square footage divided by gross square footage per student equals building capacity.

This type of change might be shown as:

Gross Square Footage per Student

	Elementary	Middle	Senior High
Traditional	70	90	110
Current	90	120	145

Academic Classroom Size

Use of computers, project based learning, and the added personnel required with inclusion of students with disabilities in regular classrooms require a considerable increase in classroom size.

	Square Feet	Square Meters
Kindergarten (and PreK.)	1200	111.60
Elementary School	900	83.70
Middle School	850	79.05
High School	800	74.40

Technology Education

Computers and television are making a significant impact on academic learning as well as the vocational areas. Retrieval of information through the internet, CD-ROM, databases and the application of information create very different learning environments from those utilized in the past.

Computers are being used in laboratory settings and in regular classrooms. Installations in schools begin to suggest that computers will aid in the applied learning for all students. New spatial arrangements are being created for this type of instruction.

Teacher Professionalism

In most school buildings today, the professionalism of teachers is inhibited by the physical structure. New schools are providing space for teacher group planning, access to communications devices such as telephones, computers, and amenities, including well furnished teacher lounges and work rooms. Building designs should foster teacher dialogue and sharing rather than assuming that teachers spend most of their time isolated in a single instructional space.

Building Features

These features are becoming commonplace in the ideal educational environment:

1. Use of some windows, at least one per instructional area
2. Sloped roofs lessening the problems of roof leaks
3. Security devices to limit vandalism and break-ins
4. Spaces for student dialogue including informal seating arrangements
5. Safer playground equipment designed to utilize findings from studies in psychology
6. Spaces designed to give students (and teachers) brief interludes from large groups — personal space for occupants of the learning environment.
7. Telephones in each classroom.
8. Increased size of classrooms.
9. Extensive use of carpeting throughout learning areas.
10. Increased use of color and acoustical treatments.

Educational spaces should reflect many of these trends if appropriate learning is to take place.

1.0 The School Site

A school site is more than merely a building location. It is an integral part of the school facility and one of the basic tools in the educational process. The planned educational experiences as well as many community functions will be enhanced or limited by the adequacy of the school site. Therefore, the selection and development of the site should be undertaken with great care. The criteria for selecting a site should be sufficiently broad and flexible to allow for the character of the school district and the nature of the educational program. In considering an existing or prospective school site, attention should be directed toward the location and potential for the identified educational and community needs.

1.1 Site is large enough to meet present and future educational needs defined by state and local requirements. (25)

Most state education departments either mandate or recommend the minimum number of acres needed for the specific grade levels. Typical current acreage specifications are:

Elementary School
10 acres plus one acre for each 100 students (4.05 ha)

Middle School
20 acres plus one acre for each 100 students (8.10 ha)

High School
30 acres plus one acre for each 100 students (12.15 ha)

According to the American Institute of Architects State Requirements Survey, nearly one-third of the states use the above guideline. Several states have no standards for the size of school sites. Where land acquisition is costly, state departments usually concede somewhat lower acreage standards. Appraisals of site size should give consideration to the nature of the educational program requirements, but full credit should not be given for sites smaller than the ideal referenced in this criterion. A scoring of satisfactory may be given if state minimums are met, but full credit should not be given for sites smaller than the recommended ideal.

1.2 Site is easily accessible and conveniently located for the present and future population. (20)

A central location is especially essential at the elementary and middle school levels. Although most school districts no longer find the neighborhood school concept feasible, it continues to be helpful if significant numbers of students attend a school in their immediate residential area. Closeness of the school to student populations also minimizes parental and bus transportation. For high school students it is expected that most will be bussed or will provide their own transportation. Computerized mapping can be helpful in visualizing the locations of students homes.

The following are considered maximum walking distances for school attendance:

Elementary	one mile
Secondary	two miles

Maximum riding time on school buses is generally accepted as:

Elementary	30 minutes
Secondary	60 minutes

1.3 Location is removed from undesirable business, industry, traffic, and natural hazards. (10)

The surrounding environment should be compatible with educational needs and development. Safe and healthful conditions are very essential for students and teachers. Areas where there is danger of pollution or explosion should be avoided. Concern should also be given to areas where toxic waste or radon gas might be present. Schools are best located where there will be no adverse affects from industrial smoke, dust or odors. A site free from disturbing noise pollution, e.g. trucks, railways. and airline traffic, is preferable. Proper zoning restrictions can help protect the school environment. Most states have laws that limit the proximity of liquor and pornography establishments to schools. The criteria cited here apply generally to schools regardless of grade level. Because of the acreage required for senior high schools, it is somewhat more difficult to avoid proximity to all undesirable factors.

1.4 Site is well landscaped and developed to meet educational needs. (10)

Attractive landscaping is an asset to every school building. The site should support plant life, natural vegetation, and trees without undue effort. A school building is one of the most effective public relations tools. The image of the school should be a positive one for those who attend, work at, or visit. The school should appear attractive to those who merely have reason to pass by. The landscaping is an important part of that image. Parent and student groups often can assist in improving the landscaping arrangements. Care should be taken, however, to assure that provision is made for continued maintenance of plantings and shrubbery. Sometimes at high schools the landscaping can best be limited to foundation plantings at what is considered the main entrance to the facility. Ideally one looks for comprehensive efforts that create a parklike appearance throughout the site. Ideal site development includes grading, drainage, on-site streets and parking.

1.5 Well equipped playgrounds are separated from streets and parking areas. [Elementary (10)]

For an elementary school the playground areas are very important. At that age, outdoor activity is both physically and mentally desirable. Location of playgrounds is a major consideration when devising the site utilization plan. Playgrounds should not be adjacent to main highways and particularly not near school vehicular entrances to the site. Safety and convenience are basic to this criterion.

Well equipped athletic and intramural areas are separated from streets and parking areas. [Middle School (10)]

More space is needed for the middle school students than elementary. Intramural games such as softball, soccer, touch football, etc. need extensive planned areas for the activity. For a larger school enrollment several areas may be needed for each of the activities. In some situations areas may be designated separately for boys and for girls. Attention should be given to well-developed space for a diversity of intramural games.

Well equipped athletic and intramural areas are adequate with sufficient solid surface parking. [High School (10)]

Although the streets and parking areas associated with the high school may not necessarily be concrete or asphalt, it is essential that such areas are smooth and solid. The amount of student and adult traffic at any high school necessitates easy and convenient access. In fact, if the parking is not paved, use of the space will be unsuitable most of the time. Driving over and parking on grass surfaces usually leads to ruts and holes which make use during wet seasons almost impossible and not much better under dry conditions. Although curved drives with landscape will provide aesthetic relief, care should be given to avoid sharp curves, excess corners, and dead-end streets.

1.6 Topography is varied enough to provide desirable appearance but without steep inclines. (5)

The site should have an elevation and contour which will insure good drainage and yet avoid soil erosion, especially over the full life of the building. Steep inclines, however, may create construction problems and increase site development costs. Fault areas and mine subsistence areas should be avoided. Natural variations in topography can add greatly to the aesthetic beauty of the site and challenge the architect to a modest creative orientation of the building with the surroundings. Topographical considerations should receive equal concern regardless of whether the building serves elementary, middle, or high school students.

1.7 Site has stable well drained soil free of erosion. (5)

The type of soil (rocky, sandy, etc.) and its drainage, fertility, and stability are important. Some schools are necessarily located in lowlands where drainage is difficult to obtain. In those instances, the building should be placed at an elevation at least sufficient to have water run away from the structure in all directions. For any school facility, especially when outdoor activities comprise a part of the day, good drainage is not only an appearance factor but also a cost factor affecting the daily care of the building. Some authorities consider the site drainage matter as relevant to the number of school custodians needed to keep the building appropriately clean on a daily basis. In scoring this item, regardless of student age, look carefully at student traffic patterns for all areas on the site.

1.8 Site is suitable for special instructional needs, e.g., outdoor learning. (5)

The instructional program in most schools today extends beyond the classroom. The school site can be a valuable asset to learning. Elementary schools need space for outdoor physical education as well as informal play. For older youth, practice fields for a wide range of activities are essential. Nature trails add greatly not only to the natural beauty of the school site but to supplement science classes at all grade levels. Open water may be a hazard particularly for younger children, but if state laws and topography do not preclude this feature on a school campus, and safety features are included in the design, the instructional program and site appearance will be enhanced. Athletic fields are essential at the secondary level and need to be in close proximity to the classroom buildings to maximize convenience and supervision.

1.9 Pedestrian services include adequate sidewalks with designated crosswalks, curb cuts, and correct slopes. (5)

Both on-site and off-site sidewalks are needed for all age levels including adult employees and visitors. For young children the school site should help to create and maintain desirable patterns of safe walking. Care should be given to pedestrian and vehicular traffic flow so that hazardous crossings are avoided. Curb cuts and appropriate sidewalk slopes are legal requirements that must be provided for handicapped students and adults. (SEE INFORMATION IN 2.1)

1.10 Sufficient on-site solid surface parking is provided for faculty, students, staff, and community. (5)

The determination of an adequate amount of parking space is often a problem for school administrators and architects. The following guidelines may be used to determine an appropriate amount of parking space. Note that this determination does not serve for extensive visitor and spectator parking at school events.

Parking area criteria:

1. One space for each teacher and staff member.

2. At the high school level, review the 11th and 12th grade enrollments for the previous two years. Consider factors, such as urban vs. rural and community affluence. It is usually estimated that 50% of the older students will drive cars to school.

3. The minimum space per car should be 8 - 1/2' x 18' (2.59m x 5.49m).

4. It is fairly accurate to allow 300 square feet per car (2.79m2).

5. For the disabled allow at least one space or 2% of the total number of spaces. Each of these spaces should be 12' x 18' (3.66m x 5.49m).

6. Parking areas should have curb cuts for the disabled, if the parking area is not at ground level.

2.0 Structural and Mechanical Features

Structural and mechanical features are basic to all functions of a school plant. These features determine future maintenance costs, capability of expansion, and feasibility of making changes to meet new requirements in education. It is important that basic designs for the electrical, water and waste disposal assure sufficient capacity for present and future needs. Systems designed for minimal initial costs are invitations for future operational problems.

All designs and specifications should meet local building codes as well as state educational requirements. If, in the appraisal of the structural and mechanical features of a school facility, unusual problems are discovered advice of professionals in the construction industry should be sought. Because deficiencies in structural and mechanical design along with code violations are costly to correct, all efforts should be directed toward the prevention of construction errors. Criteria in this section are separated into structural and mechanical/electrical factors.

2.1 Structure meets all barrier free requirements both externally and internally. (15)

Several Federal laws, including PL 90-480, "An Act to Ensure that Certain Buildings, Financed with Federal Funds are so Designed and Constructed as to be Accessible to the Handicapped;" PL 93-112, "The Rehabilitation Act of 1973" (specifically Sections 502 and 504), PL 94-142, "The Education for All Handicapped Children Act of 1975," and PL 101-336, "Americans with Disabilities Act of 1990" (ADA) have established regulations for public school facilities which must be considered in any appraisal.

Inclusively, the laws require no physical barrier to remain between mentally or physically disabled persons and programs which are available to everyone else. The American National Standards Institute, Inc. (ANSI) established standards which have helped administrators interpret the laws. Several of the more common specifications are listed below as examples. While ADA requires compliance with the Uniform Federal Accessibility Standards (UFAS), those standards have yet to be published as of the printing.

These are the basic categories that should be examined in performing an evaluation.

BASIC CATEGORIES IN PERFORMING AN EVALUATION

Site Considerations
H.C. Parking Space
Curb Cuts
Sidewalks

Changes In Levels
Ramps
Elevators
Lifts
Stairs

Doors
Width
Opening Pressure
Threshold
Hardware

Rest Rooms
Stall Width and Depth
Grab Bars
Lavatories
Dispensers

Floors and Halls
Width
Surface Covering
Obstructions and Hazards

Seating
Space for Wheelchairs
Traffic Circulation

Operating Mechanisms and Controls
Height
Ease of Manipulations

Telephones
Height
Volume Control

Water Fountains
Height
Controls

PARKING SPACES

At least one (or 2%) of parking spaces must be "Van Accessible" or 8' wide with an adjacent 8' wide passenger loading zone, at walkway level (or with appropriate curb cuts) and must be made available nearest to main entrance.

ENTRANCES AND TRAFFIC AREAS

At least one main entrance with clear, level floor for a distance of 5'-0" on either side of the door and similar extensions a minimum of 18" beyond the "pull" side.

Smooth, solid surface sidewalks have gradient 1:12 or less with level rest areas at 30'-0" intervals, and objects projecting from walls with their leading edges between 27" and 80" shall protrude no more than 4" into the corridors.

Hallways & aisles minimum 6'-0" and ramps minimum 3'-0" with non-slip surface.

Ramps over 6" high have handrails on each side which are between 34" and 38" high with a diameter of 1-1/4" to 1-1/2" and extends at least 1'-0" beyond the last step.

ELEVATORS

Elevator cars must be minimum of 80"x54" or 68"x54", have handrails on at least two sides, be automatic and have raised tactile signs at least 1/2" high. All floor buttons shall be no higher than 48" above floor surface.

Elevator cars must be level with floors at stopped position.

RESTROOMS, SHOWERS AND FOUNTAINS

Entrances at least 3'-0" wide with 3'-4" clearance to vision screen.

At least 1 water closet with stall at least 6'-0" X 5'-0" having outward opening door, 1 1/2" OD grab bars able to withstand a 250 pound load on each side at least 3' - 0" long and 33"-36" above floor.

At least one lavatory with minimum 27" clearance underneath and no exposed hot water or drain pipes.

At least one wall-mounted urinal with an elongated rim at a maximum of 17" above floor finish.

Where showers exist, at least one for each sex must be accessible, in a stall at least 3'-0" X 3'-0" with seat and grab bars, single-lever control.

Soap tray and controls located no more than 3'-4" above floor.

Water fountain height for elementary age not over 2'-6". Others must be between 2'-6" and 3'-0".

COMMUNICATIONS

At least one public telephone, with push buttons and adjustable volume, available with operable parts no more than 4'-0" above floor level.

Tactile information, direction and information signs located throughout the facility.

Exits and emergency systems utilize both visual and auditory signals.

SPECIAL AREAS

At least two percent of lockers in each area are accessible to wheelchairs.

All laboratories, work and study areas, have 3'-0" isles between tables, desks and bookstacks. Work and service surfaces no more than 3'-0" high with 2'6" clearance below.

All assembly areas provide wheelchair spaces for at least two percent of users.

Climate, light and drapery controls must be no more than 4'-6" above floor.

2.2 Roofs are sound, have positive drainage and are weather tight. (15)

The single most common structural problem in school buildings is roof leakage. Scarcely a school facility exists that at some time has not leaked. The roof should be weather proof and insulated to the maximum extent that reasonable cost permits. Attention to proper relief of roof areas is essential. Proper drainage should be provided by durable and adequate valleys, drains and downspouts. Downspouts and drains should connect to storm sewers. Flat roofs are usually insulated and covered with tar and gravel. Glass in the roofing is not recommended because of problems associated with control of sunlight, heat gain and loss, and cleaning. Since the early 1980s, there has been an increase in the use of pitched roofs covered with pre-finished metal or rubber (seamless).

2.3 Foundations are strong and stable with no observable cracks. (10)

Exposed foundation walls can be inspected from the outside of the building. Look for masonry cracks at corners of the building. Such cracks often cut through a major portion of the exposed foundation wall. Foundation cracks may significantly weaken the structure and allow moisture to seep through the foundation. Check also where additions are attached to a previous structure.

2.4 Exterior and interior walls have sufficient expansion joints and are free of deterioration. (10)

Deterioration of building walls may include a wide range of problems. Small cracks may exist inside or outside the buildings. Mortar joints may be cracked, loose or flaking. Interior walls may have cracks, holes or plaster may be powdery. Mildew can be a problem either inside or outside the building. Walls that are stained and marked are unsightly even though not a major structural problem. Expansion joints are used in long wings of school buildings. Without expansion joints, long single building units will develop cracks due to expansion and contraction of the basic structure. The walls represent potential safety, structural, maintenance and appearance problems.

2.5 Entrances and exits are located so as to permit sufficient student traffic flow. (10)

Buildings of compact design and those of long finger-type arrangements are more functional if access is possible at each side of the building. The number of entrances will be determined by the size of the building. Normally entrances (and exits) will serve the following functions: bus transportation, parking, athletic and other outdoor activities, emergency evacuation, visits of parents and others, deliveries, and service. Corridor widths and numbers of entrances should be geared to the volume of student traffic with reasonable consideration of the functions enumerated above.

2.6 Building "envelope" generally provides for energy conservation. (10)

The energy crisis of 1974 created a primary concern for a quality building envelope. Everything from schools to commercial buildings to private homes should be designed to prevent heat loss and create heat gain, where needed, through active or passive solar energy or other efficient fuels.

The Electrification Council in Washington, D.C. in its 1983 publication about energy management stressed the importance of the building envelope. It suggested five major circumstances in which the envelope aids reduction of heat gain and loss:

- Infiltration and exfiltration
- Solar heat gain through windows
- Heat loss through windows
- Heat gain and loss through walls, roofs, etc.
- Internal heat gain

Energy studies and code requirements typically address these aspects of energy management. A nontechnical facility survey can reveal at least preliminary findings that relate to the quality of the exterior of the building These materials may comprise any one or combination of: wood, brick, concrete, metal, glass or space-age plastics. In addition, the quality of workmanship, site location, site orientation, amount & kind of glass can be appraised.

2.7 Structure is free of friable asbestos and toxic materials. (10)

Schools built during the 1930-1970 period often contain hazardous asbestos material. Such material may be in acoustical plaster, suspended ceiling tile, coverings of pipes and vents or other insulation.

Occasionally schools encounter problems of floor coverings or insulation that may, under some conditions, emit toxic fumes. School administrators and facility directors are advised to be alert to hazards of this nature which can be harmful to students and employees A Certificate of Compliance should be displayed in the principal's office.

2.8 Interior walls permit sufficient flexibility for a variety of class sizes. (10)

Flexibility of interior space has been a long sought factor in school buildings. At least three design eras have been experienced. Historically, all classrooms were expected to be the same size, large enough for 30-40 students. Advances in educational methods resulted in a realization that class sizes vary from year to year. Therefore, movable interior walls would better accommodate instructional need. The movable walls, however, were moved so infrequently that the added cost seemed unwarranted. In more recent years, the need for varying size groups for instruction has led to a purposeful designation of small, medium and large rooms in the initial design. This item addresses the need for some variation in class sizes through any one or all of the methods referenced above.

2.9 Adequate light sources are well maintained, properly placed, and not subject to overheating. (15)

Illumination in instructional areas is of major importance. For many years the tendency was to increase the quantity of light. More recent studies, however, place equal value on the quality of light. Lighting authorities disagree on whether illumination has a direct effect on learning. It is certain though that a minimum standard must be maintained to make school work possible.

The quality of light is based on several factors:

Brightness	The relative amount of light available at the work surface in relation to the level of illumination in the field of view.
Glare	The light which hits the work surface at the same angle as it is reflected into the eye.
Visual Comfort	The ease of seeing based on fixture design and placement, amount of contrast and ceiling colors. Recommended colors are ivory, white, light beige and pale yellow.

The quantity of light has been studied carefully in recent years due to the need for energy conservation. The following guidelines are "recommended" levels provided by the Illumination Engineering Society and the typical levels provided based on actual use in New York City schools.

ILLUMINATION LEVELS

	Recommended Foot Candles
Libraries	
Reading rooms and carrels	70
Stacks	30
Book repair and bindings	70
Check in and out, catalogs, card files	50
Offices	
Designing, detailed drafting	110
Accounting, bookkeeping and business machines	85
Regular office work, reading, transcribing, active filing and mail sorting	70
Corridors and stairways	20
Washroom	20
Classroom Space	
Regular classroom work	50
Chalk boards	100
Drafting rooms	100

	Recommended Foot Candles
Auditoriums	
Assembly only	20
Study hall	50
Laboratories	
General work	50
Close work	100
Lecture Rooms	
General	50
Special/demonstration/exhibit	100
Exterior	
Parking areas	5
Roadways	5
Hallways	20

Maintenance of the lighting system is also of great importance. Fixtures should be located so as to permit easy replacement of fluorescent tubes and bulbs. Accumulation of dust and dirt on fixtures also greatly decreases lighting efficiency.

A light meter is necessary to determine the footcandles at desk level. A test for glare can be accomplished by placing a mirror on the desktop to ascertain if excessive light is reflected into the eyes of the student.

2.10 Internal water supply is adequate with sufficient pressure to meet health and safety needs. (15)

Water requirements for school buildings may be based on the following per person:

Without cafeteria, gymnasium or showers	15 gal/day (68.25 l)
With cafeteria, but without gymnasium or showers	20 gal/day (91.00 l)
With cafeteria, gymnasium and showers	25 gal/day (113.75 l)

Where a public water supply is provided, city officials will be able to provide information on the quantity being furnished to the building. Water pressure may be informally checked by flushing several water closets and turning on drinking fountains and handwashing facilities. If pressure does not drop significantly, the system is considered satisfactory.

2.11 Each learning/teaching area has adequate convenient wall outlets, phone and computer cabling for technology applications. (15)

With the increased use of media equipment and computers, classrooms must provide access to electric power. Outlets should be in good condition with cover plates properly affixed. In classrooms for young children, plastic caps should be placed over the outlets so as to prevent the insertion of any metal object into the outlet. Appropriate permanent electrical service needs to be furnished in special areas, such as typing rooms, serving areas and computer laboratories. Current needs for technology require multiple strip outlets as well as access to electrical power on each wall.

2.12 Electrical controls are safely protected with disconnect switches easily accessible. (10)

For large buildings on a campus where electrical service must be redistributed to several points or buildings on campus, the electric service equipment should be contained in a locked fenced area or housed in a secure building. Interior circuit panel boxes should be kept locked or in an enclosed area to which students do not have access. If circuit switch boxes are located in corridors, the boxes should be kept locked. Panel boxes should be conveniently located with disconnect switches so that power can be cut off quickly during an emergency.

2.13 Drinking fountains are adequate in number and placement, and are properly maintained, including provisions for the disabled. (10)

Regardless of grade level, drinking fountains in school buildings should be furnished at no less than 1 per 100 students. Many educators would suggest doubling that ratio. Location of fountains should be at one or more central points on each floor. Most newer schools now provide electric water coolers. These are more easily maintained than the traditional type fountain.

Drinking fountains for the disabled should be at a 2'-6" height from the floors. In schools for older students, the source of water should not exceed a 3'-0" height.

Many elementary schools provide drinking fountains in each classroom.

2.14 Number and size of restrooms meet requirements. (10)

In all school buildings, the restrooms (lavatories) should be located in convenient areas, at least one per floor for each sex. For the lower elementary grades (especially Pre-kindergarten and Kindergarten), restrooms may be provided for each room or shared by two rooms. It is appropriate to locate restrooms and/or handwashing facilities near cafeterias. Kitchen areas must have employee restrooms provided. Although educators often refer to a restroom as a lavatory, technically a lavatory is a handwashing facility. Students using restrooms should have to pass the handwashing facility as they leave the restroom. Some schools have found the large industrial type sink located in a corridor alcove a better arrangement for supervision than having sinks placed in the restrooms. When urinals and commodes are located in an enclosed inner room, a see-through window between the corridor and the wash area is an effective arrangement for supervision of students.

Although local and state codes vary by states, the following serve as a preliminary guide:

Type of School	*Number of Lavatories*	*Number of Water Closets*
Elementary School	1:30 up to 300 students 1:40 for all above 300	Boys*1:40 Girls**1.35
Middle School	Same	Boys*1:75 Girls**1:45
High School	Same	Boys*1:75 Girls**1:45

* In addition to 1:30 for urinals

** Some newer standards are requiring a greater number of water closets for female students.

2.15 Drainage systems are properly maintained and meet requirements. (10)

The drainage system inside the building can be checked by forcing a maximum of water through the system. This can be accomplished at the same time as checking item 2.10. When forcing excess water through the system, note how adequately the water is drained.

Discuss the matter of adequate drainage with building personnel that may be expected to be knowledgeable about the matter.

There should be floor drains in each restroom and in other locations where hazard of broken pipes and stopped drains may create a flooding problem.

2.16 Fire alarms, smoke detectors, and sprinkler systems are properly maintained and meet requirements. (10)

The fire alarm system, regardless of the type of school, should be on a separate electrical circuit so that it is not inadvertently turned off. The alarm should have a distinct sound, different from the school bell system. It should be capable of activation from several points in the building in addition to the central office. The alarm should be of sufficient volume to be easily heard throughout the building. A battery powered alarm system should be provided in case of a power failure. Most local codes now require schools to have smoke detectors and/or sprinkler systems. Checks should be made to determine that all such equipment is in proper working condition.

2.17 Intercommunication system consists of a central unit that allows dependable two-way communication between the office and instructional areas. (10)

Communications systems must be either a public address system or an internal telephone system. Phones cause less distraction to students but do not permit the "broadcast" of announcements, etc. Two factors should be considered essential: the equipment should be maintained in operable condition; the initial contact should be possible from the classroom as well as the office. In the event of an emergency, this feature is of major significance.

2.18 Exterior water supply is sufficient and available for normal usage. (5)

Normal usage of the water supply includes routine building maintenance, lawn and landscape care and minor emergencies, such as small fires, etc. For these purposes, at least one water outlet on each side of the building is essential. The adequate supply should also accommodate major fire control. Water supply by hydrant is essential for this purpose. Buildings located in areas without public utilities would benefit from water sources such as ponds or streams of water on the site. A sprinkler system for lawns and landscaping is highly desirable. Athletic fields usually have need for sufficient water supply to enable the turf to have reasonable growth thus decreasing the likelihood of injury.

3.0 Plant Maintainability

Local school officials have a responsibility to preserve and protect the physical properties of the district. Buildings should be maintained, as nearly as possible, in their original state. Time, the elements, and normal wear will cause deterioration which hopefully can be lessened by effective operational and maintenance procedures.

Maintainability refers to those aspects of a building which make possible the extended life of the building at reasonable cost. The characteristics of the building that relate to maintainability are design, construction materials, durability of fixed equipment, floor coverings, interior wall and ceiling materials, hardware and fixtures. The emphasis here is on the general quality of the building per se rather than the routine care and maintenance.

Maintainability is built into the facility and therefore results from decisions made about "building quality" when the school is originally planned, remodeled or modernized. The true total cost of a building is the original capital investment plus interest costs plus maintenance for the life of the building.

3.1 Exterior windows, doors and walls are of material and finish requiring minimum maintenance.(15)

In all type of school buildings the choice of materials for windows, doors and walls is of major importance. Quality construction will add greatly to the longevity of these building features. The type of finish will determine the ease of routine cleaning.

Windows may be fixed or operable. If operable, weights and locks are significant factors. Maintenance varies considerably depending on whether frames are wood, steel or aluminum. Glass thickness affects the amount of breakage.

If one checks the door schedule for a new school, the importance of the number, size, type and finish of the doors throughout the building becomes apparent. Because most doors receive so much use, finish materials, e.g. formica, can make a major difference. Hinges and locks and door closers are always of importance. Panic bars on exit doors can be a problem due to poor quality.

Ceramic tiled walls are more easily maintained than other finishes. Another alternative is the use of epoxy paint which is very difficult to scratch or mar and is also easily wiped clean. The least durable is flat paint, especially when it is used on cement or cinder block walls.

3.2 Floor surfaces throughout the building require minimum care. (15)

The information provided here is applicable to schools at all grade levels. The views expressed about floor surfaces relate also to many special areas in buildings. Because of the critical nature of the classroom, that portion of the school is of special importance.

Floor materials usually consist of wood, vinyl tile, ceramic tile, terrazzo or carpet. Of these, wood and tile were the most common for many years and are still found in most older buildings. Carpet is now widely accepted as the most easily maintained. Terrazzo has the longest life expectancy and requires relatively little care and maintenance, but since it is more expensive it is used more typically in corridors and restrooms.

3.3 Ceilings and walls throughout the building, including service areas, are easily cleaned and resistant to stain. (10)

Plastered ceilings and walls are the most durable and are easily maintained if protected by a good quality paint. Buildings that have minimal or improperly designed foundations tend to suffer from cracks as the building undergoes shifts. Sound transmission between rooms is usually less with plastered walls.

During the past 30 years ceilings have typically been constructed as a suspended ceiling with acoustical panels. Often such a ceiling will last for many years without any problem. However, roof leaks frequently require replacement of panels; unfortunately, despite ease of replacement, variations in coloration cause an undesirable appearance. Another fault of panels is sagging and warping which cause the ceiling to have a poor appearance.

The service areas such as kitchens present special problems because of heat, grease, and smoke. Ceramic tile is often used because of the ease of cleaning. Painted surfaces should have an epoxy paint. Acoustical ceiling tile can be provided with a special surface that is more easily cleaned.

3.4 Built-in equipment is designed and constructed for ease of maintenance. (10)

Built-in equipment in any school building will typically include counters, cabinets, shelving and chalkboards in classrooms. Kitchens and cafeterias usually have built-in space for preparation, food service, and dish washing. Bulletin boards and metal lockers are often provided in corridors. Built-in equipment is often found in shops and laboratories.

All such equipment should be designed for educational use. Residential equipment will not meet the heavy usage occurring in a school setting. Hinges and locking devices are of importance to maintenance reduction. Kitchen and cafeteria equipment usually is made of stainless steel for long service and ease of cleaning. Laboratory counter tops are usually molded from a chemical-resistant modified epoxy resin.

Chalkboards may be made from porcelain enamel, glass or slate. Extruded aluminum frames and chalk troughs are desirable. Tackboards are more durable when made from cork or vinyl material. Equipment and furnishings should not have sharp or rough edges.

3.5 Finishes and hardware, with a compatible key system, are of durable quality. (10)

The difference in cost between an inexpensive (low cost) building and one of reasonable quality is determined to a great extent by the quality of hardware and other finish items. If quality is sacrificed for economic reasons, building maintainability expenditure will be costly over the life of the building.

3.6 Restroom fixtures are wall mounted and of quality finish. (10)

Daily cleaning of restrooms in a public facility is always a significant operational task. Restroom fixtures contribute greatly to the ease or difficulty of the care of the restrooms. Whenever the fixtures are floor mounted, floor cleaning is more difficult and less efficient. Wall mounted fixtures greatly aid the daily cleaning and make repairs less difficult.

Wash sinks are typically wall hung and do not create the problem discussed above. Faucets on sinks are a source of difficulty if they are not self-closing.

Stall partitions can also create maintenance problems. In fact, the lack of well anchored partitions leads some school systems to remove partitions from boys' restrooms - a less than appropriate arrangement. Rigid ceiling hung partitions are best.

3.7 Adequate custodial storage space with water and drain is accessible throughout the building. (10)

In years past, little consideration was given to the convenient location of custodial closets. More typically in newer schools, this need is recognized. Ideally, a custodial closet will be located near a cluster of classrooms. In buildings with long corridors, custodial closets should be located near the middle of the building wing or section.

Accessibility of water and cleaning materials is important for meeting emergencies and represents a significant time saver for the custodian.

Custodial closets require a minimum of 36 square feet (3.35 m^2), shelving for cleaning materials and space for hanging brooms and mops. A mop sink recessed in the floor is needed. Closet doors should be lockable for security purposes.

It is especially important to have custodial closet space on each floor of a multi-story building.

3.8 Adequate electric outlets and power to permit routine cleaning are available in every area. (10)

The care of school buildings necessitates the availability of electric service. Floor scrubbers and vacuums require electric power. Although electric cords can be used to obtain access to power, reasonable limitations exist. Classrooms typically will not present a problem. Corridors, gymnasiums, cafeterias and auditoriums, however, may be less conveniently cared for when electric outlets are not provided.

3.9 Outdoor light fixtures, electric outlets, equipment and other fixtures are accessible for repair and replacement. (10)

The key word here is accessibility. Quality fixtures and equipment will need less repair and less frequent replacement, but too often maintenance is not provided because of the inconvenience of getting to the faulty item. Plans for maintenance should be made at the same time that installation occurs.

Fixtures and equipment should be considered carefully at the time of acquisition or specification development to determine that all aspects of maintenance can be performed easily and conveniently.

4.0 Building Safety and Security

School officials have no greater responsibility than to provide and maintain school facilities in the safest possible condition. Students, employees, and patrons can reasonably expect that their well-being is protected whenever they enter or use the school facilities. Complete safety cannot always be assured, but every effort must be made to achieve and maintain the highest possible level of safety. Safety hazards in schools may relate to site location, building design, selection of material or poor operational practice. Security as a protection of the building itself is essential to assure uninterrupted operation of the school program.

This section of the guide considers site, building and emergency safety.

4.1 Student loading areas are segregated from other vehicular traffic and pedestrian walkways. (15)

Bus loading areas should be separated from other vehicular traffic to assure the maximum of safety for students. A mixture of types of traffic can create confusion which leads to accidents. Walkways to accommodate non-bus pedestrians should be made as separate as possible. Especially important is the avoidance of students crossing bus loading areas and bus driveways to reach playgrounds and athletic fields. Ideal is the arrangement found in some large high schools where two bus lanes pass through an enclosed structure similar to a commercial bus terminal. Such a design with as many as eight or ten buses available to students at one time maximizes the safety of students and protection from the elements.

4.2 Walkways, both on and off site, are available for safety of pedestrians. (10)

Despite large numbers of students being transported by school buses and many older students driving their own cars, there is a need for sidewalks in school areas. Some students do walk to school, some parents visit school on foot and pedestrian traffic occurs with school activities. Sidewalks are not a luxury but a safe means of traversing streets and roads.

School officials typically have no authority for off-site sidewalk maintenance or construction. It is the school's responsibility, however, to exercise leadership in stressing to community governing bodies that safety in school areas requires sidewalks.

The school system is responsible for on-site sidewalks. These may lie along the perimeters of the site next to streets or around and between buildings on the campus. Sidewalks need to be of sufficient width, 4 - 6 feet (1.22m - 1.83m), depending upon the amount of pedestrian traffic. Sections of the walk should lie evenly and be free from holes and cracked corners. On-site sidewalk steps must follow barrier-free requirements.

An important safety factor related to on-site sidewalks is that street crossing signs, school zone signs, flashing lights or stop lights are provided. Assurance of student safety is a major responsibility of school officials.

4.3 Access streets have sufficient signals and signs permitting safe entrance to and exit from school area. (5)

The focus here is on student access to the school site. Although the need for safety protection may vary some with the age of the school group to be served, basic safety conditions are the same for all school buildings. Approaches to the school should be marked with signs designating a school zone. Street crossing areas should be marked on the pavement with appropriate safety zones. Stop signs may be necessary depending upon the number of pedestrians and the volume of vehicular traffic. Where both are heavy number-wise, a lighted stop signal may be needed.

Special problems are sometimes created when school sites and playgrounds are on opposite sides of the street. When possible, consideration should be given to closing the street during the school day.

4.4 Vehicular entrances and exits permit safe traffic flow. (5)

Schools by their very nature comprise two elements, students and vehicles. A small school campus may have only a single driveway and parking area; larger schools will have diverse access to specific areas of the campus. Safety hazards increase somewhat as the number of vehicular entrances and exits increase. Of great significance is the design of safe vehicular drives. Provision for one-way traffic is highly essential for most school settings. A separation in driveways and parking areas is desirable for three different groups: (1) students, (2) parents and visitors, and (3) employees. Such an arrangement tends to lessen congestion and improve safety conditions around the school.

4.5 Playground equipment is free from hazard. [Elementary (5)]
Locations and types of playground equipment are free from hazard. [Middle (5)]
Athletic field equipment is properly located and free from hazard. [High School (5)]

Note the references here are to playground equipment at the elementary and middle school levels whereas the focus is on athletic equipment at the high school. Playground equipment has prevailed in its conventional design for many years. Swings, slides, ladders, May poles, and similar pieces are no longer considered safe equipment. These factors should be considered: (1) design, (2) material, (3) placement, and (4) surrounding surface. Equipment should be designed as injury free as possible. The construction should be free of sharp edges and be of material in sizes easily grasped by the age student using the equipment. Crowded placement of equipment may lead to increased accidents. Surface materials, such as sand, pea gravel and wood chips, will lessen the impact from falls. More appropriate contemporary equipment, such as modular wooden units, rubber tires, and preformed concrete crawl units, are consistent with the psychology of play for children. Early childhood (Pre K. and K.) play areas should be fenced and separated from areas used by older children.

High school athletic equipment considered here might include baseball backstops, goal posts, bleachers and running tracks. For outdoor activities at this age level the equipment is viewed primarily in terms of sturdy construction and durability. Bleachers are the single most hazardous item for high schools and should be carefully inspected at least annually. At the high school, condition of playing fields may be of as much importance as the fixed equipment. Avoidance of holes, furrows and sunbaked soil can decrease injury.

4.6 The heating unit(s) is located away from student occupied areas. (20)

In older conventional schools it was customary to locate the heating unit (usually a boiler) in a basement area. Often classrooms were built over the furnace room. Such an arrangement is very hazardous in the event of fire or explosion. Newer buildings usually provide the heating unit in a part of the building at ground level or only partially submerged. In such cases, the area is usually separated from classrooms. Standards used in some localities necessitate the location of the heating unit in a structure separate from the main structure. This is the best and safest arrangement. Vocational facilities and classrooms in warmer sections of the country sometimes use open flame gas fired units in instructional areas. Despite safety mechanisms that may be provided on the unit, the wisest policy is to never place an open flame unit within an instructional area. Leaking gas fumes, noxious exhausts and explosion are all increased hazards where this type of unit is used.

4.7 Multi-story buildings have at least two stairways for student egress. (15)

In case a fire occurs in the proximity of one set of stairs there must be an alternate route to the ground level. The condition of stairs and fire escapes is very important. Concrete steps or metal are best for fire safety. If the stairs are of wood construction, storage areas should not be used under the stairs. Narrow stairways, excess turns or partial blockages all increase hazard. Stairways in schools should lead directly to major exits on the ground level. The width of stairways is also very important. Even in smaller buildings a minimum of 6' is desirable.

4.8 Exterior doors open outward and are equipped with panic hardware. (10)

Doors with panic hardware sometimes stick or fail to function properly. These same doors may fail to provide adequate security when the building is closed. Poorly designed and poorly maintained panic hardware sometimes has led to use of padlocks and chains on school exterior doors. Such devices cause a potential hazard in case of emergency evacuation of the building. Chains and dead-bolts requiring keys to open from the inside are all unacceptable in schools if the doors are needed for routine or emergency egress.

4.9 Emergency lighting is provided throughout the building with exit signs on separate electrical circuits. (10)

Classrooms (and any occupied area of the school) need to be protected from complete loss of illumination. Again, this possibility exists for windowless buildings and all schools involved in night use. Instructional areas should be provided with sufficient lighting capability to prevent panic. Large auditoriums are especially critical in this respect. Battery powered lighting units are now commonly provided in corridors and large group areas.

All public buildings, including schools, should have lighted exit markers for exterior doors. These signs should be wired for electrical service not linked with other power in the building. In case of temporary power failure, such as overloads, the exit signs should be on a separate circuit. An emergency power source is needed for this equipment.

4.10 Classroom doors are recessed and open outward. (10)

Schools are unusual in the number of doors to be found throughout the building. Special attention should be given classroom doors since these doors typically have heavy usage. Recessed doors are a safety factor which tends to reduce corridor obstruction. The combination of narrow corridors and non-recessed doors creates an obstacle course. Schools, like most public buildings, have a need for doors to open outward so as to lessen the risk of student injury if an emergency occurs requiring quick evacuation of the building.

4.11 Building security systems are provided to assure uninterrupted operation of the educational program. (10)

Security systems are now typically provided in most school buildings. Such systems as laser beam vandal detectors, entrance alerts, and appropriate night lighting can protect the school district property. Protection of this sort can help to avoid vandalism which could necessitate a temporary closing of the school and interruption to student instruction.

4.12 Flooring (including ramps and stairways) is maintained in a nonslip condition. (5)

Wet terrazzo floors may be the most hazardous type of floor. Such conditions may be found near entrances, in restrooms, and in dressing/shower rooms. Custodial care with a mop may lessen this problem. Occasionally someone uses wax on terrazzo thus creating a serious slippery condition. Vinyl tile floors which require frequent scrubbing and waxing become slippery, particularly when wet. Obviously schools with carpeted interiors can also present safety problems resulting from worn or loosely attached carpet. Ramps and stairs should be protected with the nonslip strips that are glued or cemented to the critical locations.

4.13 Stairs (interior and exterior) meet standards (maximum 7" rise to 11" tread) and steps range in number from 3-16. (5)

Inconsistency in the height of stair risers can cause falls and possible injury. The 7 inch standard may vary somewhat in different localities, but only slight differences should prevail. Note the requirement that no less than three steps should be used. If only one or two steps are provided, there is a tendency to not be aware of the limited difference in levels. The limit of 16 risers assumes a resting point in between flights of stairs where a full story is involved. Thus a fall on the stairs will be limited to a shorter distance.

4.14 Glass is properly located and protected with wire or safety material to prevent accidental student injury. (5)

Glass was less of a problem in older, more traditional buildings. The use of glass increased as schools were made more visually open. Exterior glass doors become popular until it was discovered that too many people tried to walk through them. Glass around exterior doorways, as well as in library, office and other special areas, can present safety problems. At any location where student traffic is heavy, safety glass is essential. Better yet is an avoidance of the use of glass where breakage and student injury may occur.

4.15 Fixed projections in the traffic areas do not extend more than eight inches from corridor wall.(5)

Corridors are intended to facilitate the movement of people; in schools, most of these people are students. Fixed projections, such as display cases, drinking fountains, benches, and storage cabinets, are not a problem if the corridors are sufficiently wide. In an emergency, projections can lead to possible injury of students. In a practical sense, the flow of student traffic will be smoother if such obstructions are totally avoided.

4.16 Traffic areas terminate at an exit or a stairway leading to an egress. (5)

Corridors and stairways should be designed so as to facilitate easy access to the exterior of the building. The reason for this is to aid an efficient evacuation of the school. Dead-end corridors are a special hazard. Usually any corridor that serves more than two classrooms is considered to be a dead-end if no exit is provided at the end of that corridor. For the reasons already mentioned, a stairway is also considered to be improperly designed if it does not lead directly to an exit. Every precaution should be taken to assure that building design does not cause entrapment of building occupants.

4.17 Adequate fire safety equipment is properly located. (15)

In schools, fire safety equipment usually consists of extinguishers (liquid and chemical) and fire hoses. Portable fire extinguishers control by either cooling the flame or by smothering the fire. These devices are appropriate for small fires. Especially important is the periodic inspection required to ascertain that an extinguisher will function adequately when needed. Inspection tags sometimes reveal a lack of service to fire equipment. When such is the case, a false sense of security exists.

Schools now are often equipped with heat and smoke detection devices. Ceiling sprinklers are commonly provided. Their value may be largely for times when the building is vacant rather than in use, since most modern schools can be very quickly vacated.

4.18 There are at least two independent exits from any point in the building. (15)

Fire, explosions, and windstorms can cause an exit to be blocked. For this reason all school buildings should have two or more exits to assure that no one will be trapped. Ground level classrooms with direct access to the outdoors represent a safer arrangement than otherwise. Except in windowless buildings (where it is impossible) at least one window should be designed of sufficient size to permit egress. In terms of safety, a good case could be made for at least one window in each room to assure maximum safety. Reference to 4.7 and 4.16 may be helpful.

4.19 Fire-resistant materials are used throughout the structure. (15)

In older buildings stairways and exits are frequently constructed of wood. Obviously, these areas are critical to the safety of occupants of the building who may find their attempts to get out of the building seriously impeded. Concrete and steel are considerably safer materials for these locations since both are non-combustible materials.

Although somewhat less significant than the stairways and exits, every school should be made as fire safe as possible. This means a minimum use of wood. Special hazards exist in schools with wooden floors and wainscots in corridors. Less often a wooden wainscot is still found in classrooms. In some regions of the nation considerable wood is used for schools with very pleasant appearance but extra fire safety precautions are necessary. Stage curtains should be checked to determine if they are made of fire resistant material. Sprinkler systems can increase safety to human life and help protect the building during non-school hours.

4.20 Automatic and manual emergency alarm system with a distinctive sound and flashing light is provided. (15)

Fire alarm systems are a "must" in every school building. A distinctive sound is essential for an emergency alarm. The automatic system should be wired on a separate electrical circuit and have sufficient volume so that it can be heard throughout the facility. A manual alarm is needed in the event that all power to the building has been terminated. Current standards require a flashing light that will alert deaf individuals.

5.0 Educational Adequacy

The educational adequacy of school buildings, in a sense, represents the purpose of the entire appraisal process. This is true because schools exist primarily to serve the educational needs of a community and school district. The determination of how adequate the facility is, in the final analysis, must be derived from the relationships between educational program and physical structure. Individual behavior results in part from the environment. The environment provided by the school building will deter or enhance the instructional program.

The criteria found in this section are categorized according to academic learning, specialized learning and support space. The quality as well as the quantity of the space in the school is a major focus in the analysis of facility adequacy.

5.1 Size of academic learning areas meets desirable standards. [Elementary School (25)], [Middle School (15)],[High School (10)]

Academic classrooms are those used for basic subject fields, such as social studies, mathematics and English. Usually such classrooms are designed for 20-30 students. Somewhat surprising in school design is the practice of reducing the size of the room as the student becomes more mature. Young children have need for more movement within classrooms, especially since they tend to spend more of their instructional time in one room. Secondary schools are allocated fewer academic space points and more special learning points than elementary schools.

Standards for the size of academic learning areas vary from state to state. Some states mandate minimums, others provide recommendations. There are no national standards. The allocation of space for academic areas seems to have evolved from practice rather than from sound educational research.

In an academic classroom, regardless of the age of the student, the per student square footage allowance is usually 25-30 sq. ft. (2.33-2.79 square meters). When the state or the school district determines the numbers of students per class or section, the calculation of room size is determined. The following represent generally accepted room sizes:

Academic Classroom Size for Excellent Rating

	Square Feet	Square Meters
Kindergarten (and PreK.)	1200	111.60
Elementary School	900	83.70
Middle School	850	79.05
High School	800	74.40

Schools designed with the "open space" concept as an educational philosophy tend to provide instructional spaces that do not coincide with the above standards. For those schools the square footage standard for a per student calculation is applicable.

5.2 Classroom space permits arrangements for small group activity. [Elementary School (15)], [Middle School (10)], [High School (10)]

At all instructional levels, the new emphasis on cooperative learning (group work) necessitates space for this type of instruction to occur in all content areas, including the academic portion of the curriculum. Every class should have an alcove or corner where 3-5 students can assemble for group work. At the elementary level, reading areas may be used for this purpose. High schools may have a variety of spaces in the building for group activity. However, some space is, nevertheless, essential in academic classrooms.

5.3 Location of academic learning areas is near related educational activities and away from disruptive noise. (10)

This criterion considers the practical convenience of a building design that brings related instructional areas into nearby space. Aiding students and teachers in keeping appropriate space in close proximity is especially important in making the facility efficient. The noise factor is considered in the columns dealing with isolation.

Educational Learning Space Relationships

Learning Space	*Near To*	*Isolated From*
1. *Administration*	Main Entrance Health Suite	Teacher's Workroom Music Shops Gymnasium Athletics
2. *Art*	Industrial Arts Photography	
3. *Athletic Field*	Gymnasium Parking Lots Street Access	Academic Classrooms
4. *Auditorium*	Street Access Parking Lot 2nd Major Entrance Music	Gymnasium
5. *Book Storage*	Administration Academic Classrooms	General Storage Custodial Storage
6. *Cafeteria*	Major Entrance Academic Classrooms Storage and Receiving	
7. *Classrooms*	Central Area Library	Music Shops

Learning Space	*Near To*	*Isolated From*
8. *Commercial Program*	Administration	Academic Classrooms
9. *Commons* (student)	Main Entrance Administration Library Academic Classrooms Rear and Side Entrances Cafeteria Auditorium	Shops
10. *Custodial Workroom*	Utilities Storage	Classrooms
11. *Custodian Storage* (decentralized)	Storage & Receiving	Food Service Main Entrance
12. *Conference Rooms*	Administration Guidance Teacher's Lounge Academic Clusters	Laboratories Shops Music Cafeteria
13. *Driveways*	Administration Main Entrance Storage & Receiving Music Auditorium Cafeteria Athletic Fields	Play Areas
14. *Guidance*	Administration Main Entrance	Direct Access to Administration
15. *Health Services*	Administration Main Entrance	Guidance
16. *Homemaking*	Art Student Commons	Food Service Gymnasium
17. *Technology Ed*	Art Auditorium Music Administration	Vocational Shops
18. *Kindergarten*	Separate Play Area Driveway Restrooms Storage Cafeteria	Other Classrooms

Learning Space	*Near To*	*Isolated From*
19. *Kitchen* (Cafeteria)	Storage	Auditorium
20. *Library*	Academic Classrooms Exterior Entrance	Shops Music Auditorium Gymnasium
21. *Music*	Auditorium Art Homemaking	Academic Classrooms Administration
22. *Main Entrance*	Access Streets Parking Administration	Storage & Receiving Shops
23. *Parking*	Maintenance Auditorium Gymnasium Athletic Fields	Playgrounds
24. *Restrooms*	Classrooms Playgrounds Public Areas	
25. *Science*	Labs Growing Areas Nature Walks	Food Service Commons Library Auditorium
26. *Service* (utilities)	Access Drives Storage & Receiving	All Instructional Areas Playgrounds
27. *Shops* (vocational)	Athletic Areas Agricultural Land Storage & Receiving	Academic Areas Other Buildings
28. *Storage*	All Instructional Non-Instructional Service	Main Entrance
29. *Teachers' Lounge*	Related Instruction Work Area	Administration Guidance

5.4 **Personal space in the classroom away from group instruction allows privacy time for individual students. [Elementary School (10)], [Middle School and High School (5)]**

Research emphasizes a need for all persons to have "time out" from the instruction and activities of the total class. Reduction of stress is an important aspect of learning. In elementary school, lofts help to serve this purpose. Personal learning space in the middle school is sometimes found in reading alcoves in a library. Older students in a high school can benefit from individual student study carrels.

5.5 **Storage for student materials is adequate . [Elementary School (10)], [Middle School and High School (5)]**

Students have at least two different needs for storage. Depending upon the climate and the season, wearing apparel must be accommodated. For all except the young student, metal lockers located in the corridors will adequately serve this need. Lockers may be wall recessed or located in locker pools (clusters). Regardless of the type of installation, the sufficiency of size and number is an important factor. Convenience of location is also a consideration. For most students (those in a departmentalized instructional program) lockers will also accommodate books and materials. In self-contained rooms, student desks will serve for most individual belongings. Cupboards, cabinets and drawers are often needed in classrooms to store project materials which cannot easily be taken from the room.

5.6 **Storage for teacher materials is adequate. [Elementary School (10)], [Middle School and High School (5)]**

The storage of personal belongings of the teacher necessitates a wardrobe or cabinet of sufficient height to accommodate a full-length coat. Shelves are also very essential. This storage area should have a lock to assure protection for items kept there. In some larger secondary schools, department office storage provides desirable space to take care of teacher needs.

In addition, each classroom should have book and paper supply storage sufficient to keep the materials for the specific teaching station. Seldom does a classroom truly have enough storage space. Teachers generally express a need for more storage space.

5.7 **Size of specialized learning area(s) meets standards. (15)**

In special learning areas, it is essential to determine the typical class size for the specific program. The instructional areas to be considered here include but are not limited to: remedial classes, speech and journalism, special education, computer laboratories, in-school suspension, etc.

The general guideline for the allocation of space regardless of grade level is approximately 25-30 square feet (2.3-2.8 square meters) per student. For the specialized subject areas (mostly at the secondary level) the following are typical allocations of space on a per student basis:

Suggested Space for Specialized Learning Areas

Area	*Square Footage*	*Square Meters*
Art	45-50	4.19-4.65
Commercial Bookkeeping	25-35	2.33-3.26
Business Law	25-30	2.33-2.79
Related Business Education	25-30	2.33-2.79
Typing	35-40	3.25-3.72
Crafts	45-50	4.19-4.65
Industrial Arts		
Shop (min. 1800 sq. ft.,167.4 sqm.)	100-110	9.30-10.23
Mechanical Drawings	35-40	3.26-3.72
Language Laboratory	45-50	4.19-4.65
Library	30 per seated student for a minimum of 15% of student body	
Music		
Band (min. 2000 sq. ft., 186 sqm.)	40-50	3.72-4.65
Choir	30-35	2.79-3.26
Physical Education		
Dressing Rooms	50-60	4.19-5.58
Health Classrooms	25-30	2.33-2.79
Science Laboratory	45-50	4.19-4.65
Special Education	35-45	3.26-4.19
Auditorium		
Audience Space	10-12/seated capacity	0.93-1.12
Stage & Total Auxiliary Space	3750-4800	348.75-446.40

5.8 Design of specialized learning areas is compatible with instructional need. (10)

Schools designed specifically for the program offered usually provide space that at least serves reasonably well. Occasionally rooms may be odd-shaped, long and narrow, or with alcoves which may be unsuited for regular instructional needs. The problem referenced here more often occurs in old obsolete buildings or in buildings used originally at an instructional level and then transformed, with a minimum of modification, for use at a different level. Such a conversion often results in a building with space inappropriate for the current program. For each special learning area the design of the space should have evolved from the specific instruction to be provided.

5.9 Library/Resource/Media Center provides appropriate and attractive space. [Elementary School (10)]; [Middle School and High School (15)]

This space may be given a variety of names. Some schools accommodate media in the same area with library materials, thus creating an instructional materials center. Whether these needs are combined or met separately, adequacy is a significant factor. Accreditation standards usually refer very specifically to this portion of the school with an emphasis on available seating and work space for 10-15% of the student body. Design and decor are a major factor in this area. Even in schools with hard surfaced floors the library is often carpeted. Storage and workspace for repair and cataloging is essential for an adequate center. See space standards under 5.7.

5.10 Gymnasium (or covered P.E. are) adequately serves physical education instruction [Elementary (5)]

Physical education should be provided at the elementary level although it is not always mandated. It is assumed the program provides more than supervised play. If appropriate enclosed (interior) space is not available, then an outdoor covered area is acceptable. Sometimes lunchrooms are used as multi-purpose areas including physical education. Such an arrangement is appropriate if sufficient time is provided for class schedules. The tasks of rearrangement of furniture creates an extra workload, however.

Gymnasium and outdoor facilities adequately serve physical education instruction. [Middle School (10)]; [High School (15)]

Middle school facilities require a gymnasium available for a well-rounded program. Bleachers are not a necessity although if they are available the gym may substitute for an auditorium. Typically, such an arrangement is less than ideal.

At the high school level provision is usually made for physical education and athletics. For these upper grades, the total plant must include shower and dressings rooms, equipment storage space, adequate ventilation, and spectator accommodations. Title IX requirements now stress the adequacy of girls' facilities comparable in size and convenience to that provided for boys. See space standards provided under 5.7.

5.11 Pre-kindergarten and kindergarten space is appropriate for the age of students and nature of instruction. [Elementary (10)]

Too often as kindergarten programs and those for four-year-olds are initiated, a regular elementary classroom is provided. This amount of space is insufficient usually for the amount of activity necessary for children of this age. Some open space, informal alcoves, and arrangements for quiet time are needed. Large play apparatus takes space and extra materials storage is essential. Direct access to a fenced play area is important. Usually restroom space separate from that used by the older students is provided. Carpeted floors help to create a pleasant environment and aid in effective use of the floor space.

Science program is provided sufficient space and equipment. [Middle School & High School (10)]

At both middle school and high school levels science is a very important instructional area. Classroom space and laboratory space should be provided. Lab stations are needed for small groups of students (3-4) and in sufficient numbers to accommodate classes of 20-25 students. Teacher preparation space is essential. Often such space is located between two instructional areas so as to serve more than one teacher. Note carefully the provision for the several science areas since their needs are quite different.

5.12 The music program is provided adequate sound treated space. [Elementary School (5)], [Middle School (10)], [High School (10)]

Music programs are now universally accepted at all grade levels. Although in some elementary schools, the music teacher brings the program to the homeroom, separate space is highly desirable. Storage is an important factor for vocal music but becomes an increasing demand in the middle and high school instrumental programs. Partial acoustical treatment of walls and ceilings is necessary for quality instruction and also to avoid transmission of sound to other areas of the building. Tiered space eliminates the need for portable risers. Separate rooms for vocal and instrumental programs are usually necessary except in schools with small enrollments. See space standards under 5.7.

5.13 Space for art is appropriate for instruction, supplies, and equipment. [Elementary School (5)], [Middle School (10)], [High School (10)]

The space for the art program should accommodate either individual or small group table space. Lighting should provide greater illumination than in most other instructional space, and provision for natural light with a northern exposure is highly desirable. Direct access to out-of-doors is especially desirable. Access to water and sinks is necessary. Storage for supplies and ongoing projects is critical in art rooms. Square footage per student is in the 45-50 range (4.18-4.65 square meters).

5.14 Space for technology education permits use of state-of-the-art equipment. [Elementary School (5)], [Middle School and High School (10)]

Technology education now encompasses much of what in the past was provided under vocational technical programs. Computer labs are provided at all levels of instruction, elementary and secondary. The table that follows includes space generally considered to be vocational in nature.

Suggested Space for Technology Education (formerly Vocational Education)

Area	*Square Footage*	*Square Meters*
Vocational		
Agriculture		
Shop (min. 1800 sq. ft.,167.4 sqm.)	100-110	9.30-10.23
Classroom	25-30	2.33-2.79
Auto mechanics		
Shop (min. 2500 sq. ft.,232.5 sqm.)	150	13.95
Cosmetology Laboratory	90	8.37
Distributive Education	30-40	2.79-3.72
Homemaking		
Clothing	40-50	3.72-4.65
Foods	40-50	3.72-4.65
Industrial Cooperative		
Training	25-30	2.32-2.79

5.15 Space adjacent to regular classrooms is provided for small groups and remedial instruction. (5)

There is a tendency for elementary schools to allocate all or most of its instructional space to typical classrooms. As instruction has become more oriented to small groups and individuals, a greater variety of space sizes have become necessary. Therefore, one should expect to find appropriate space for such educational activities as remedial reading, speech correction, federal title programs, etc. Such instructional activities should not be assigned to corridors, libraries, stages and boiler rooms. At the secondary level a variety of space is needed to serve this instructional need.

5.16 Storage space for student and teacher material is adequate. (5)

Storage for student and teacher materials can be critical because the amount of materials tends to be more extensive than in the regular academic subjects. The adequacy of storage assumes that in most of the specialized learning areas both open and closed shelving will be found and where necessary appropriate security will be provided. See information provided in 5.5 and 5.6.

5.17 Teachers' lounge and work areas support teachers as professionals. (10)

Research on facilities and learning suggests an important linkage between student learning and the manner in which professional quality space is provided to teachers. The space dedicated to teachers is one indication of the important role of teachers. The amount of space, the furnishings, access to supplies, telephone and computers among other things provided to teachers contribute to the instructional process.

Sometimes the space for teachers' lounge and work is two separate areas but often is a combined single space. In some traditional school systems, the name lounge is avoided since there is a belief that teachers need a work room but not a lounge. This space should be well furnished with comfortable lounge furniture, preferably for coffee and snacks. Microwave equipment is no longer a luxury. In a separate room or a large combined area, table space and copy equipment are necessary.

In a large school, several smaller teacher areas may be more convenient. Restroom facilities for both men and women teachers should be available preferably with entrances separate from but adjacent to the lounge.

This total area requires about 500-1000 square feet (46.5-93.0 square meters) for each 25 teachers.

5.18 Cafeteria is attractive with sufficient space for seating, delivery, storage and food preparation. (10)

At the elementary level the cafeteria may serve as a multi-purpose facility or cafetorium. In all schools effort is needed to create a non-institutional environment. Most areas will be more inviting if the walls, ceiling and floor provide a well decorated effect. Color and arrangement of tables in the dining area make a great difference in the creation of a desirable atmosphere. Where possible, some exterior dining space creates a pleasant setting during mild weather. A variation in size and shape of tables is beneficial.

Serving areas should be carefully designed for sufficient space and to preclude crossing or overlapping of student lines. Food preparation space should be large enough to accommodate the type of meals and the number of kitchen personnel. Convenience is a major factor. It is not unusual to find food preparation areas designed with too much space. Restroom facilities with arrangements for handwashing accommodations are a general requirement for all kitchen help. The design of return trays is an important consideration.

These standards are suggested:

Area	*Square Footage*	*Square Meters*
Kitchen	2 sq. ft. per meal served	0.19
Serving	0.5-0.8 sq. ft. per capacity of dining area	0.05-0.07
Dining	10-14 per seated student	0.93-1.30

5.19 Administrative offices are consistent in appearance and function with the maturity of students served. [Elementary School (5)], [Middle School and High School (10)]

The administrative suite for an elementary school is often a secondary principal's office with less space. For elementary age students the image of the office should be that of a place to seek help. Less space is needed but furniture, counters, etc., should be designed to fit the age of the students. At the secondary level this area of the school will be much larger, will have signs to identify such functions as student attendance, admissions, registration, administrative staff, etc. In this manner, the administrative office sets a tone for an appropriate operation of the building

5.20 Counselor's office insures privacy and sufficient storage. [Elementary School and Middle School (5)], [High School (10)]

This item refers to the school's guidance function. At the elementary level these services may be on a part-time basis but space in the building for student consultation on both individual and small group basis is necessary. For the middle and high schools such space is needed for full-time personnel. A modest reception area and one or more counselor's offices will be essential. A conference room and storage for materials and supplies complete the requirements. Suggested space needed is:

Area	*Square Footage*	*Square Meters*
Reception	100-200	9.3-18.6
Counselor's Office		
-one or more	120-150	11.16-13.95
Conference Room	125-150	11.63-13.95
Individual Testing Room	40-50	3.72-4.65
Storage	30-40	1.79-3.72

5.21 Clinic area is near administrative offices and is equipped to meet requirements. (5)

The clinic (health suite) regardless of institutional level is typically located near the principal's (or other administrative) office. This is especially appropriate in a school with a modest enrollment where diversified personnel are usually not available. Restrooms, water and privacy are all essential. The following suggestions refer to space allocations:

Area	*Square Footage*	*Square Meters*
Total Suite -		
Elementary and Middle School	500-550	46.50-51.15
High School		
Office (nurse)	150-175	13.95-16.28
Exam room	275-300	25.58-27.90
Waiting Room	100-150	9.30-13.95
Rest Area (separate by sex)	100-150	9.30-13.05
Restrooms	30-40	1.79-3.72

5.22 Suitable reception space is available for students, teachers and visitors. (5)

There is need for a lobby or foyer in the administrative area. This permits those entering or leaving the administrative area to avoid the heavy student traffic during the passing of classes. A minimum of 200 square feet (18.60 square meters) should be provided with increased amounts according to school enrollments.

5.23 Administrative personnel are provided with sufficient work space and privacy. (5)

These offices will usually comprise at least a principal's office and secretary's reception area. For larger schools, space for 1-3 assistant principals and clerical personnel should be provided. A conference area, supply storage, restroom(s) and records storage may require specific assigned space. The administrative suite should be attractive and well-lighted. The office area should assure that adequate privacy is provided for all personnel for student and parent consultation. Usually the administrative space is located near the main entrance to the building. In larger schools, a decentralized staffing arrangement may necessitate the space be assigned in several locations throughout the building.

These allocations of space may be helpful:

Area	*Square Footage*	*Square Meters*
Principal's Office	200-250	18.60-23.25
Asst. Principal's Office	150-200	13.95-18.60
Reception-Elementary/Middle	200-250	18.60-23.25
Reception-High School	300-350	27.90-32.55
Storage	75-100	6.98-9.30
Vault	50-75	4.65-6.98
Clerk	100-150	9.30-13.95
Conference Room	250-300	23.25-27.90

6.0 Environment for Education

It is now generally accepted that a good physical environment aids learning. Building environment is the sum total of the factors which affect one's feelings about the facility. The first impression of the school as it is approached should be positive. The building should look inviting to children as well as adults. The general inside appearance should be conducive to learning. In most instances, one's reaction to an environment is derived from a pleasing combination of factors rather than from a variety of discrete items. Since the pleasant or unpleasant reaction to the environment is often psychological, it may require conscious effort to determine the basis for one's feelings. The physical environment of a school includes both exterior and interior conditions. Emphasis should be placed on physical comfort, ease of movement and aesthetic qualities.

Some factors considered as part of the educational environment were treated in the structural and mechanical section of this material. Here the relevance is in terms of the effect that the school building has on the educational learning process. In summary, the ultimate test of the quality of the school environment, is whether the users (students and teachers) will make use of the building at times when they are not required to be there.

6.1 Overall design is aesthetically pleasing and appropriate for the age of students. (15)

The design of a school tends to be most pleasing when it blends with the surrounding physical environment. For this reason architects try to "fit" the building to its surroundings.

Elementary schools should be inviting to the young child and therefore massive huge structures are best avoided for this age group. Some single story schools lose their desired image when they are designed with long sprawling wings. For this reason (as well as convenience) larger structures need to be designed with at least some multi-story space for classrooms.

Placement on the site (although perhaps technically part of design) is important to image. The orientation of the building will affect the first reaction particularly as the school is approached. Architects typically avoid placing a parking lot in the front of a school for obvious reasons. Even the elevation of the building is a factor in general appearance. Schools look better when placed at an elevation at least slightly higher than the street.

6.2 Site and building are well landscaped. (10)

Landscaping aids greatly in the appearance of a school. An inner city school may not have a campus or even space for shrubbery around the building and that is a detriment to its appearance.

There are at least three aspects to a school landscape plan. First are the foundation plantings which help to make the building look finished. Second are the trees and shrubs which should be planted in appropriated locations across the campus. Ideally, a parklike appearance provides the desired inviting image. The third factor is the lawn. A well seeded turf with its cool green effect adds greatly to the looks of a campus.

In addition to the effect on the users, a well kept school is a major public relations tool for the school system. Design and care of the exterior appearance pays dividends in many ways.

6.3 Exterior noise and surrounding environment do not disrupt learning. (10)

Careful selection of the school site is an important factor in creating a desirable learning environment. Avoidance of airports, expressways and heavy industry is desirable. When conditions necessitate such locations, special efforts should be made to reduce the exterior noise pollution inside the building. Exterior doors with closers that operate well can make some difference. The learning environment will exist at a greater quality level if exterior noise, and other distractions, can be avoided.

6.4 Entrances and walkways are sheltered from sun and inclement weather. (10)

Protection from the elements is essential for public buildings and especially for schools. Waiting for a building to open and/or waiting for buses necessitates shelter from precipitation in most parts of the country. In the Sun Belt it is also helpful to have covered sidewalks for shade. These features complement the building and provide convenience for the users. A building that serves the public will also present a more favorable environment if entrances include roofed sections over the entrance-way.

6.5 Building materials provide attractive color and texture. (5)

Whether the school is constructed of wood, concrete, cement block or brick, the environment is affected by the type of material and texture. Buildings often include several different exterior materials and in this way present a desirable appearance. Color as well as texture affects the way one feels about the structure. The building should provide psychological warmth. In a warm climate the structure should present a cooling effect just by its color and texture.

6.6 Color schemes, building materials and decor provide an impetus to learning. (20)

There is considerable research showing that the color has a very definite effect on the occupants of a room. Such conclusions are especially relevant to educational settings. A feeling of warmth results from the use of red, yellow, orange and rich brown in furnishings. A room can be made to create a cool feeling through a decor emphasizing blue, green, pale neutrals and white. The warm colors tend to produce increased activity while the cool colors foster relaxation.

The lines and shapes of furniture and equipment also have an effect on the environment. Even the way in which furnishings are grouped leads to differences in psychological reactions.

Many new schools use graphics and bold designs on large wall areas because these features are stimulating, and are well accepted by young people.

6.7 Year around comfortable temperature and humidity are provided throughout the building. (15)

The learning environment reflects increased quality if the temperature is properly maintained. Teachers in general express dissatisfaction with the heating and cooling of their buildings. Any time that one is conscious of the room temperature it is probably not appropriate at least for the needs of that specific individual. Therein lies the problem, the considerable range of individual assessment of temperature.

Heating and cooling systems often are not properly balanced throughout the building. Often the rooms or zone controls are not made accessible to teachers or the thermostat provided does not actually control anything.

Many classrooms become overheated by the release of body heat from the occupants and/or the absorption of solar heat during the day. Building orientation and roof deck overhang may greatly affect this condition. Recently there has been general acceptance of the fact that a proper classroom environment must include climate control. Quality environment is difficult to assure without a means of keeping classrooms at an acceptable temperature and humidity.

6.8 Ventilating system provides adequate quiet circulation of clean air and meets 15cfm VBC requirement. (15)

Often the lack of ventilation rather than the temperature is the source of the problem relating to room comfort. Experts claim that a minimum of 15 cubic feet of fresh air per student per minute is adequate for the normal classroom. Some special areas, such as shower rooms, need greater amounts of ventilation to reduce the excess moisture in the air.

Mechanical systems present two types of problems. Air filters require regular maintenance. Air circulation is impeded if filters become clogged from dirt. The ventilating system also may be unduly noisy to the extent that instruction is hindered. Ventilating fans in large areas may be extremely noisy to the extent that use of such areas for assemblies is made difficult.

6.9 Lighting system provides proper intensity, diffusion, and distribution of illumination. (15)

The lighting of a room is a very important factor in the way one feels about the environment. Item 2.09 addresses the light fixtures and the appropriate quality of illumination needed for various instructional settings. Consideration needs to be given also to other aspects of the lighting. Intensity refers to the degree of brightness emitted by the illuminaire. Diffusion is related to the manner in which the light is reflected by ceiling or sidewalls. Distribution is how well the fixtures provide light in equal quantities to all areas of the room.

It has been shown through research in Arkansas and Alberta, Canada that the behavior of students is affected by the type of fluorescent lights. Cool white fluorescent, for a protracted length of time tends to make students lethargic. Full spectrum fluorescent tubes tends to improve the behavior of children. The educational environment is influenced by the lighting provided.

6.10 Sufficient drinking fountains and restroom facilities are conveniently located. (15)

Standards for these necessities are given in 2.14. Here the emphasis is on the way in which drinking fountains and restrooms aid the environment. These very functional needs are obviously best planned when location is given major consideration. These services should be available to students and faculty on each floor of the building. Large group areas should always have these services nearby. Schools with extended wings need water and restrooms at easily accessible locations.

Location in terms of distances is an important aspect. However, the environment can be made pleasing when these facilities can be easily found. Some authorities contend that buildings should reflect a natural order of things so that occupants (and especially first time visitors) will be led by their own logic to the location of these services.

6.11 Communication among students is enhanced by commons area. (10)

Learning theory emphasizes the importance of the socializing process in school. Much of this occurs in non-classroom settings. The Commons has become recognized as an important part of the school, especially for middle and high school students. Such large areas serve as a place enabling students to gather, converse, share ideas and strengthen their identity with the school.

The size of the space needs to be adequate to avoid crowding. Small group benches are desirable and the aesthetics of the area can add greatly to the atmosphere of the building. The Commons is usually centrally located and may be adjacent to the library and/or the cafeteria.

In elementary schools, the multi-purpose area often serves the function of a Commons.

6.12 Traffic flow is aided by appropriate foyers and corridors. (10)

The interior environment is greatly enhanced with a feeling of openness. This does not necessarily require an open concept design, although the benefits from such schools may add much to the psychological environment. Corridors should be conveniently wide and should lead to commons or other areas where the student can find relief from the "egg crate" feeling of very conventional buildings. In addition to the ease of movement in the building, there are times when administrators need to control access to certain areas. Every school, except perhaps the very small, needs to have corridor gates or barricades. From a users view, such arrangements easily communicate which sections of the building are open at any specific time. Such arrangements are especially helpful during community use of the school.

6.13 Areas for students to interact are suitable to the age group. (10)

The emphasis here is on quality of space. The need for this space has been justified elsewhere. The space needs to be appropriately finished and decorated. Places to sit and converse are essential. Fixed benches and some group settings of furniture help to create a pleasing environment. Plantings of greenery can produce a desirable effect. Painting and lighting are factors to be considered in evaluating this space.

6.14 Large group areas are designed for effective management of students. (10)

The large group areas referred to are those used for instruction, such as gymnasiums, auditoriums, multi-purpose rooms, music rooms and libraries. These areas should be designed for visual supervision of students. Narrow hallways, alcoves, visual barriers and partial walls may deter the teaching function and lead to student misconduct.

The use of carpeting in large group areas tend to inhibit sound and adds to the decor. Some provision for sound control creates a more pleasant environment. Convenient locations of light switches and outlets permit more convenient use of this space.

6.15 Acoustical treatment of ceiling, walls and floors provides effective sound control. (10)

Whether the instructional space is a regular classroom, an auditorium or music room, the areas will be more effective for teaching and learning if reasonable effort is made to control sound. For the ceilings the treatment usually is acoustical plaster or acoustical tile. In special areas additional treatment may be needed. The sidewalls can be made to reduce sound through the use of draperies, small areas of acoustical tile or other materials that decrease the amount of sound reverberation.

Floors are made sound absorbent through the use of carpet. This type of floor covering probably does more to improve the acoustics in the room than any other sound control material. At the same time the visual environment is greatly improved.

6.16 Window design contributes to a pleasant environment. (10)

The design of windows in schools is a topic of much discussion. Windows in schools increase the costs, in terms of construction and maintenance. However, most individuals, teachers and students state a preference for some use of windows. The lack of windows makes it almost a necessity to close school anytime there is an extended power failure. At least one state has enacted a law requiring operable windows in all new classrooms.

The intent here is not to accept any one solution to this controversy but to acknowledge that the potential for a quality educational environment is increased with at least a minimal visual strip for each instructional space. The way in which the building design provides for appropriate fenestration is a significant factor.

6.17 Furniture and equipment provide a pleasing atmosphere. (10)

This item is addressed in part in 6.6. In addition to the previous comments, a pleasing atmosphere is important in the context of the specific student group. For younger children large display areas can be important. Such areas often are provided bulletin boards to which student work can be attached. Sometimes large wall sections can be covered with vinyl, burlap or carpet to create convenient colorful pin-up display areas.

For older students display cases are widely used. Sometimes these are associated with subject areas with access within the classroom for arrangement. Viewing is typically from a corridor.

It is important that the scale (size) of the furnishings be consistent with the age group. Small children who see only the lower portion of the school environment can be overwhelmed by large objects designed for the adult world. High school students are adults (or nearly so) and want their environment to reflect an adult scale.

Glossary

ACADEMIC LEARNING AREA — A space designated for teacher/student activity, usually in content areas, such as English, History and Mathematics.

ACCESS STREETS — Vehicular traffic area leading to the site.

ACOUSTICAL PANEL — A wall or ceiling covering designed to absorb sound waves.

ALCOVE — A semi-separated area designed for study or counseling.

APPRAISAL — An evaluation of specific components by a knowledgeable person.

BARRIER-FREENESS — A condition in which no physical barriers exist in the building which denies a person access to any part of the building or program.

BUILDING ENVELOPE — The facade, or surrounding surface, of a structure.

BUILDING ORIENTATION — The manner in which the physical structure is placed on the site so as to take advantage of daylighting, climatic and aesthetic factors.

CAFETORIUM — An area designed to function as both a cafeteria and an auditorium.

CAMPUS — Everything contained within the boundaries of a school site.

CEILING SPRINKLER — The portion of a fire suppression system which releases a spray of water upon an area.

CERAMIC TILE — A clay product with an impervious, glazed surface designed for long wear and easy cleaning.

CLERESTORY — A row of glass located immediately beneath the roof line on an external wall which allows natural light to enter the interior space.

CLIMATE CONTROL — An adjustable electrical or mechanical thermostatic device which interfaces with a heating ventilation and/or cooling mechanism initiating or terminating its function.

CLINIC — That portion of a facility which houses health services.

COMMONS — An area designated for informal student gathering.

COMPACT DESIGN — A design which produces a high ratio of internal space per linear foot of external wall.

CORRECT SLOPE — The graduation of a ramp to conform with barrier-free requirements.

CURB CUT — A gentle sloped ramp connecting sidewalks and adjacent parking areas which allows passage of disabled pedestrians.

CUSTODIAL CLOSET — The space designed for storage and service of cleaning equipment and supplies.

DEAD-END CORRIDOR — A hallway with only one direction of egress.

DECOR — The style and layout of interior furnishings.

DEMONSTRATION SPACE — An area in which theoretical concepts can be shown through practical example.

DRAINAGE SYSTEM — Pipe used for removal of waste water and sewage.

EGG CRATE DESIGN — Layout exemplifying a typical double-loaded corridor, or a single hallway with opposing classrooms.

EGRESS — The act, place or means of leaving a building.

ELEVATION — A measured height above a known level, or a plan showing such height in a building design.

ENERGY MANAGEMENT — The administration of fossil fuel utilization.

ENERGY SOURCE — Origin of usable energy.

ENVIRONMENT — That which surrounds, the elements or the control of the elements.

ENVIRONMENT FOR EDUCATION — Often in the past limited to psychological factors, but now broadened to include the physical aspects of the school which affect the learning process.

EPOXY PAINT — A chemical composition containing color pigments which cures with a super hard, impervious surface easily cleaned.

EROSION — A physical or chemical removal of existing substances which leaves a rough or scarred surface.

EXFILTRATION — The loss of interior air through openings in the building envelope.

EXPANSION JOINT — A designed break in ceilings, walls and floors which allows controlled thermodynamic expansion and contraction to occur between solids thus preventing cracking.

FACE BRICK — Brick used on the exterior of a building.

FASCIA — A panel fastened to the rafters on the outside of the building.

FENESTRATION — The arrangement, proportioning and design of windows and doors in a building.

FINGER DESIGN — The layout of a building which includes double-loaded corridors projecting from a central structure to allow balanced natural lighting and ventilation.

FIRE ESCAPE — A planned second egress from a second story for emergency purposes.

FIRE RESISTANT — Building materials selected for natural ability to retard combustion.

FIXED PROJECTION SCREEN — A reflective surface designed or permanently placed for visual instruction.

FIXED WINDOWS — Non-movable light transferring wall materials which allow no egress.

FLOOR SCRUBBER — A portable, mechanical device used for cleaning floor surfaces.

FLUORESCENT TUBE — A glass tube containing gasses which glow brightly when charged with an electrical current.

FOOT CANDLE — A measurement of light equal to that emitted by a candle at a distance of one foot.

FORMICA — A surface of laminated plastic products.

FOYER — An entrance hallway or lobby.

FRIABLE ASBESTOS — A natural mineral fiber which can be easily separated from the mother material.

FULL SPECTRUM LIGHTING — A complete dispersion of light energy including all wavelengths.

GABLE ROOF — A pitched roof ending in a gable.

HEATING UNIT — A mechanical device which releases and disperses energy from a stored source.

HIP ROOF — One that slopes upward from the four sides of the building.

ILLUMINATION — Light energy provided to illumine interior or exterior.

INFILTRATION — The uncontrolled intrusion of undesirable elements, such as heat, light or air through the building envelope.

INTERNAL HEAT GAIN — Uncontrolled temperature rise caused by sunlight passing through windows, doors or skylight, or from the body of heat of building occupants.

JOIST — Structural members which support floors, ceilings and roofs.

LARGE GROUP AREAS — Interior spaces designed to accommodate numbers larger than that of a normal class.

LAVATORY -- Restroom or the hand washing facility located within a restroom.
LIGHT METER — A devise to measure the amount of reflected light.

LIGHT SOURCE — The origin of natural or man made light within a facility such as a window, door, skylight, fluorescent tube or incandescent lamp.

LOAD BEARING — Vertical structural member which support ceilings and/or roofs.

LOBBY — That space in a building that serves as an informal gathering area generally located near the main entrance.

MASONRY — Construction utilizing stone, brick or concrete.

MULTI-PURPOSE AREA — Internal space created for several uses such as play, assembly and dining.

NOISE POLLUTION — The infiltration of unwanted or uncontrolled sound at a level above that which is comfortable to the human ear.

NON-INSTITUTIONALIZED ENVIRONMENT — A warm, soft atmosphere created to be comfortable to the human psyche.

OFF-SITE SIDEWALKS — Improved pedestrian traffic areas located adjacent to the school site.

OPEN-SPACE CONCEPT — A spacious, unfettered atmosphere created when individual classrooms are not separated by complete walls.

OPEN WATER — Puddles, ponds and swampy areas on a school site created by uneven elevations and impervious or semi-impervious soils.

OPERABLE WINDOWS — Windows which can be easily opened or closed.

OUTDOOR LEARNING LABORATORY — External areas which allow teachers and students to enter and study the natural environment.

PANIC BARS — Hardware attached to the inside of external doors which releases the latch when pushed outward, sometimes referred to as panic hardware.

PEDESTRIAN TRAFFIC — The flow or movement of persons on foot or in wheelchairs.

PERSONAL SPACE — Space within the building designed for individual use rather than group activity (freely chosen as "time-out").

PLANT MAINTAINABILITY — Design features of a facility which aid the cleaning and maintenance functions.

POST-OCCUPANCY REVIEW — A complete audit or evaluation of a facility immediately following its being placed in use to determine its usability and durability.

PRE-FINISHED METAL — Exposed metal, either structure or facade, the surface of which is durable, easily cleaned and attractive.

RAMP — An inclined surface connecting different levels of flow space which allows easy movement by disabled persons.

RECEPTION AREA — (See Lobby)

RECESSED DOORS — Doors opening into hallways designed so as not to extend into the flow space or impede traffic flow.

RECORDS STORAGE — A fireproof, controlled access area providing safe storage of non-replaceable items such as students permanent records.

REST ROOM — A toilet, sometimes improperly called a lavatory.

SAFETY GLASS — Glass with plastic or wire laminated within to prevent splintering when broken.

SCHOOL SITE — The land used for school building and the adjacent educational related services.

SITE UTILIZATION PLAN — A plan for placement of structures, walks, parking and other uses of the land.

SLAB ON GRADE — A concrete foundation which forms the ground floor and which is not raised appreciably above the surrounding ground level.

SMOKE DETECTOR — An electrical device which senses the presence of smoke particles in the air and sounds or activates fire extinguishing equipment.

SOLAR HEAT — Heat transferring device utilizing sunlight as a source of energy.

SOLID SURFACE PARKING — Parking areas with an improved surface to provide natural and easy removal of accumulated dirt, water, snow and ice for cleanliness and safety.

SPECIAL LEARNING AREA — Space provided for study of particular topics or by particular audiences.

SPECIALIZED AREAS — Space for non-academic learning.

SPRINKLER SYSTEM — Self-actuated fire extinguishers placed at strategic points throughout the building.

STAIR RISER — Individual stair steps.

STRUCTURAL AND MECHANICAL DESIGN — The strategic selection and placement of support and auxiliary control systems for strength, economy and utilization.

STRUCTURAL SLAB — Concrete floor providing both strength and a barrier.

STUDENT TRAFFIC PATTERN — An area designed primarily as flow space.

STUCCO — A mixture of concrete or plaster used as a covering for interior or exterior walls.

SUSPENDED ACOUSTICAL PANELS — Fiberglass or fibrous materials suspended to form a ceiling designed to absorb sound waves.

TEACHING STATION — Specific locations associated with a learning area designed to provide a support system for instruction.

TECHNOLOGY EDUCATION — Instructional programs that depend on the use of equipment, such as computers, often involving project oriented learning.

TERRAZZO — A very hard, impervious floor surface that is long wearing and easily maintained.

TOPOGRAPHY — The distinctive physical surface features of a place or region such as a school site.

TOXIC MATERIALS — Substances which are poisonous to humans or animals.

VEHICULAR TRAFFIC — The movement of automobiles or buses on or adjacent to the school site.

VISUAL BARRIER — Walls, furniture, etc. which impedes light or view.

VISUAL STRIP — An area which allows vision or visual control.

WAINSCOT — Usually interior wood paneling covering the lower three feet of a wall, which differs from the rest of the wall.

WALL GRAPHICS — Pictures, drawings or writing usually painted on wall surfaces.

WATER OUTLET — Faucets or fountains.

ZONE CONTROLS — Barriers which accommodate separation of heating, cooling or lighting facilities.

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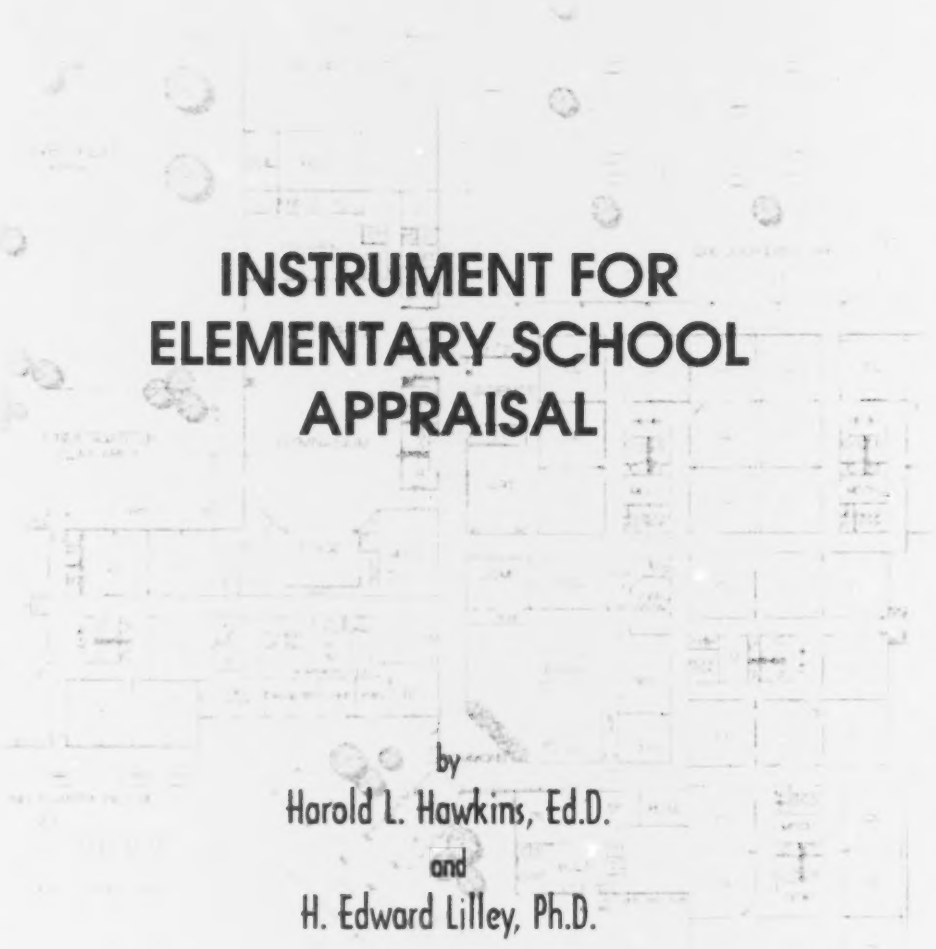

INSTRUMENT FOR ELEMENTARY SCHOOL APPRAISAL

by
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BEST COPY AVAILABLE

Directions for Appraising Facilities

Elementary School Appraisal

Prior to evaluating a building, the appraiser should become familiar with the educational program provided within the existing school facility. It is essential also to determine other pertinent factors about the facility which will provide background information sufficient to insure a thorough and accurate appraisal. Particularly helpful are the building's architectural plans, specifications and layout, if these are available. If possible, the school plant should be appraised at a time when school is in session so that the actual use of the building is more apparent.

Although the Appraisal Guide is designed for individual appraiser use, ideally the school facility should be evaluated at the same time by three to five appraisers. The ratings by each of the appraisers should then be used to arrive at a consensus for each item. The final rating is the result of careful review of the individual scores.

The instrument uses an additive scoring method, with each item having a maximum number of allowable points. A total of 1000 points is distributed among these six major categories:

Section		Maximum Points
1.0	The School Site	100
2.0	Structural and Mechanical Features	200
3.0	Plant Maintainability	100
4.0	School Building Safety and Security	200
5.0	Educational Adequacy	200
6.0	Environment for Education	200

Prior to Appraisal

Step I

Review the educational program; identify the number of faculty members and students; and examine the floor and plot plans carefully.

Overview of the Building and Grounds

Step II

Upon approach to the site look for traffic patterns, school safety signs, neighborhood environment, etc. Begin the appraisal by taking a preliminary tour of the entire building noting both exterior and interior features. Information obtained prior to arrival at the campus recorded in the Building Data Record should be verified. The appraisal weights should not be determined during this initial walk through. The appraisal is better accomplished as separate individual steps in the process.

Assignment of Scores

Step III

After the completion of the preliminary inspection, go through the entire instrument section by section. The appraisal will be more accurate if each item is carefully considered while it is appropriately observed. **Do not try to evaluate from memory** — use actual observation when making the appraisal decision.

Items that are needed/required but are non-existent should be given a 0 score. If an item is not needed and is non-existent full credit should be allowed.

Note the Table of Weights for assistance in determining the score to be given each item. Each item should first be considered in the following terms: Non-Existent, Very Inadequate, Poor, Borderline, Satisfactory, and Excellent. The weight (score) should then be assigned for that item.

Place score in space provided in the Points Allotted Column, total the score for each Section and insert in the space provided. The Section totals should then be tabulated and indicated in the Points Assigned column of the Appraisal Summary. Use the space provided in the Justification for Allocation of Points to provide notes justifying the scores at the extreme ends of the scale (e.g. very inadequate, or excellent.)

Building Data Record

Name of Appraiser _____ Date of Appraisal _____

Building Name _____

Street Address _____

City/Town, State, Zip Code _____

Telephone Number(s) _____

School District _____

Setting: ❑ Urban ❑ Suburban ❑ Small City ❑ Rural

Site-Acreage _____ Building Square Footage _____

Grades Housed _____ Student Capacity _____

Number of Teaching Stations _____ Number of Floors _____

Student Enrollment _____ As Of _____

Dates of Construction _____

Energy Sources: ❑ Fuel Oil ❑ Gas ❑ Electric ❑ Solar

Air Conditioning: ❑ Roof Top ❑ Window Units ❑ Central ❑ Room Units

Heating: ❑ Central ❑ Roof Top ❑ Room Units
❑ Forced Air ❑ Steam ❑ Hot Water

Type of Construction: ❑ Load Bearing Masonry ❑ Steel Frame ❑ Concrete Frame ❑ Wood
❑ Other _____

Exterior Surfacing: ❑ Brick ❑ Stucco ❑ Metal ❑ Wood
❑ Other _____

Floor Construction: ❑ Wood Joists ❑ Steel Joists ❑ Slab on Grade ❑ Structural Slab
❑ Other _____

Appraisal Guide for School Facilities

Table of Weights and Categories

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10
15	0	3	6	9	12	15
20	0	4	8	12	16	20
25	0	5	10	15	20	25

Appraisal Summary

SECTION	POSSIBLE POINTS	TOTAL EARNED	PERCENT	RATING BY CATEGORY
1.0 The School Site	100			
2.0 Structural and Mechanical	200			
3.0 Plant Maintainability	100			
4.0 School Building Safety & Security	200			
5.0 Educational Adequacy	200			
6.0 Environment for Education	200			
TOTAL	1,000			

1.0 The School Site

100 Points

1.1	**Site is large enough** to meet educational needs as defined by state and local requirements.	25	
1.2	**Site is easily accessible** and conveniently located for the present and future population.	20	
1.3	**Location** is removed from undesirable business, industry, traffic, and natural hazards.	10	
1.4	Site is **well landscaped and developed** to meet educational needs.	10	
1.5	Well equipped **playgrounds are separated** from streets and parking areas.	10	
1.6	**Topography** is varied enough to provide desirable appearance and without steep inclines.	5	
1.7	Site has stable, well drained **soil free of erosion.**	5	
1.8	Site is suitable for **special instructional needs**, e.g. outdoor learning.	5	
1.9	**Pedestrian services** include adequate sidewalks with designated cross-walks, curb cuts, and correct slopes.	5	
1.10	Sufficient **on-site, solid surface parking** is provided for faculty, staff and community.	5	
	TOTAL — THE SCHOOL SITE	100	

Table of Weights and Categories

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10
20	0	4	8	12	16	20
25	0	5	10	15	20	25

2.0 Structural and Mechanical Features

200 Points

STRUCTURAL

2.1	Structure meets all **barrier-free** requirements both externally and internally.	15	
2.2	**Roofs** appear sound, have positive drainage, and are weather tight.	15	
2.3	**Foundations** are strong and stable with no observable cracks.	10	
2.4	**Exterior and interior walls** have sufficient expansion joints and are free of deterioration.	10	
2.5	**Entrances and exits** are located so as to permit efficient student traffic flow.	10	
2.6	**Building "envelope"** generally provides for energy conservation. (See criteria)	10	
2.7	Structure is **free of friable asbestos** and **toxic materials**.	10	
2.8	Interior walls permit sufficient **flexibility** for a variety of class sizes.	10	

Table of Weights and Categories

		1-29%				
10	0	2	4	6	8	10
15	0	3	6	9	12	15

63

MECHANICAL/ELECTRICAL

2.9	**Adequate light sources** are well maintained, properly placed and are not subject to overheating.	15	
2.10	**Internal water supply** is adequate with sufficient pressure to meet health and safety requirements.	15	
2.11	Each teaching/learning area has adequate convenient **wall outlets**, phone and computer cabling for **technology applications.**	15	
2.12	**Electrical controls** are safely protected with **disconnect switches** easily accessible.	10	
2.13	**Drinking fountains** are adequate in number and placement, and are properly maintained including provisions for the disabled.	10	
2.14	Number and size of **restrooms meet requirements**.	10	
2.15	**Drainage systems** are properly maintained and meet requirements.	10	
2.16	**Fire alarms, smoke detectors, and sprinkler systems** are properly maintained and meet requirements.	10	
2.17	**Intercommunication system** consists of a central unit that allows dependable **two-way communication** between the office and instructional areas.	10	
2.18	**Exterior water supply** is sufficient and available for normal usage.	5	
	TOTAL — STRUCTURAL AND MECHANICAL FEATURES	200	

Table of Weights and Categories

5	0	1	2	3	4	5
10	0	2	4	6	8	10
15	0	3	6	9	12	15

3.0 Plant Maintainability

100 Points

3.1	**Exterior windows, doors, and walls** are of material and finish requiring minimum maintenance.	15	
3.2	**Floor surfaces** throughout the building require minimum care.	15	
3.3	**Ceilings and walls** throughout the building, including service areas, are easily cleaned and resistant to stain.	10	
3.4	**Built-in equipment** is designed and constructed for ease of maintenance.	10	
3.5	**Finishes and hardware,** with a compatible keying system, are of durable quality.	10	
3.6	**Restroom fixtures** are wall mounted and of quality finish.	10	
3.7	Adequate **custodial storage space** with water and drain is accessible throughout the building.	10	
3.8	Adequate **electrical outlets and power,** to permit routine cleaning, are available in every area.	10	
3.9	**Outdoor light fixtures, electric outlets**, equipment, and other fixtures are accessible for repair and replacement.	10	
	TOTAL — PLANT MAINTAINABILITY	100	

Table of Weights and Categories

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
10	0	2	4	6	8	10
15	0	3	6	9	12	15

4.0 Building Safety and Security

200 Points

SITE SAFETY

4.1 **Student loading areas** are segregated from other vehicular traffic and pedestrian walkways. — 15

4.2 **Walkways,** both on and offsite, are available for safety of pedestrians. — 10

4.3 **Access streets** have sufficient signals and signs to permit safe entrance to and exit from school area. — 5

4.4 **Vehicular entrances and exits** permit safe traffic flow. — 5

4.5 **Playground equipment** is free from hazard. — 5

BUILDING SAFETY

4.6 The **heating unit(s)** is located away from student occupied areas. — 20

4.7 Multi-story buildings have at least **two stairways** for student egress. — 15

4.8 **Exterior doors** open outward and are equipped with panic hardware. — 10

4.9 **Emergency lighting** is provided throughout the building with exit signs on separate electrical circuits. — 10

4.10 **Classroom doors** are recessed and open outward. — 10

4.11 **Building security systems** are provided to assure uninterrupted operation of the educational program. — 10

Table of Weights and Categories

5	0	1	2	3	4	5
10	0	2	4	6	8	10
15	0	3	6	9	12	15
20	0	4	8	12	16	20

4.12	**Flooring** (including ramps and stairways) is maintained in a nonslip condition.	5	
4.13	**Stairs** (interior and exterior) meet standards (maximum 7"rise to 11" tread) and steps range in number from 3 - 16.	5	
4.14	**Glass** is properly located and protected with wire or safety material to prevent accidental student injury.	5	
4.15	**Fixed projections** in the traffic areas do not extend more than eight inches from the corridor wall.	5	
4.16	**Traffic areas** terminate at an exit or a stairway leading to an egress.	5	

EMERGENCY SAFETY

4.17	Adequate **fire safety equipment** is properly located.	15	
4.18	There are at least **two independent exits** from any point in the building.	15	
4.19	**Fire-resistant materials** are used throughout the structure.	15	
4.20	Automatic and manual **emergency alarm systems** with a distinctive sound and flashing light are provided.	15	

TOTAL — BUILDING SAFETY AND SECURIY

200

Table of Weights and Forecasts

Assessment Priority Modified	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
15	0	3	6	9	12	15

67

5.0 Educational Adequacy

200 Points

ACADEMIC LEARNING SPACE

5.1 **Size of academic learning areas** meets desirable standards. 25

5.2 **Classroom space** permits arrangements for small group activity. 15

5.3 **Location of academic learning areas** is near related educational activities and away from disruptive noises. 10

5.4 **Personal space** in the classroom away from group instruction allows privacy time for individual students. 10

5.5 **Storage for student materials** is adequate. 10

5.6 **Storage for teacher materials** is adequate. 10

SPECIALIZED LEARNING SPACE

5.7 **Size of specialized learning area(s)** meets standards. 15

5.8 **Design of specialized learning area(s)** is compatible with instructional need. 10

5.9 **Library/Resource/Media Center** provides appropriate and attractive space. 10

5.10 **Gymnasium (or covered P.E. area)** adequately serves physical education instruction. 5

5.11 **Pre-kindergarten and kindergarten space** is appropriate for age of students and nature of instruction. 10

5.12 **Music Program** is provided adequate sound-treated space. 5

Assessment Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Inadequate 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10
15	0	3	6	9	12	15
25	0	5	10	15	20	25

5.13	**Space for art** is appropriate for instruction, supplies, and equipment.	5	
5.14	**Space for technology education** permits use of state-of-the-art equipment.	5	
5.15	Space for **small groups and remedial instruction** is provided adjacent to classrooms.	5	
5.16	**Storage for student and teacher material** is adequate.	5	

SUPPORT SPACE

5.17	**Teachers' lounge and work areas** support teachers as professionals.	10	
5.18	**Cafeteria/Kitchen** is attractive with sufficient space for seating/dining, delivery, storage, and food preparation.	10	
5.19	**Administrative offices** are consistent in appearance and function with the maturity of the students served.	5	
5.20	**Counselor's office** insures privacy and sufficient storage.	5	
5.21	**Clinic** is near administrative offices and is equipped to meet requirements.	5	
5.22	**Suitable reception space** is available for students, teachers, and visitors.	5	
5.23	**Administrative personnel** are provided **sufficient work space and privacy**.	5	

TOTAL — EDUCATIONAL ADEQUACY

200	

Table of Weights and Categories

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10

6.0 Environment for Education

200 Points

EXTERIOR ENVIRONMENT

6.1	Overall **design is aesthetically pleasing** and appropriate for the age of students.	15	
6.2	Site and building are **well landscaped**.	10	
6.3	**Exterior noise and surrounding environment** do not disrupt learning.	10	
6.4	**Entrances and walkways are sheltered** from sun and inclement weather.	10	
6.5	**Building materials** provide attractive color and texture.	5	

INTERIOR ENVIRONMENT

6.6	**Color schemes, building materials, and decor** provide an impetus to learning.	20	
6.7	**Year around comfortable temperature and humidity** are provided throughout the building.	15	
6.8	**Ventilating system** provides adequate quiet circulation of clean air and meets 15cfm VBC requirement.	15	
6.9	**Lighting system** provides proper intensity, diffusion, and distribution of illumination.	15	
6.10	**Sufficient drinking fountains and restroom facilities** are conveniently located.	15	
6.11	**Communication among students** is enhanced by commons area.	10	

Table of Weights and Categories

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10
15	0	3	6	9	12	15
20	0	4	8	12	16	20

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6.12	**Traffic flow** is aided by appropriate foyers and corridors.	10	
6.13	**Areas for students to interact** are suitable to the age group.	10	
6.14	**Large group areas** are designed for effective management of students.	10	
6.15	**Acoustical treatment** of ceilings, walls, and floors provides effective sound control.	10	
6.16	**Window design** contributes to a pleasant environment.	10	
6.17	**Furniture and equipment** provide a pleasing atmosphere.	10	
	TOTAL — ENVIRONMENT FOR EDUCATION	200	

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
10	0	2	4	6	8	10

Justification for Allocation of Points

BUILDING NAME AND LEVEL:

_____

Indicate the justification for the appraisal decision in the space provided.

BUILDING FEATURES THAT CLEARLY EXCEED CRITERIA:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

BUILDING FEATURES THAT ARE NON-EXISTENT OR VERY INADEQUATE:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

DATE OF APPRAISAL: _____

NAME OF SCHOOL: _____

NAME OF APPRAISERS: _____

_____

_____

_____

_____

Guide for School Facility Appraisal

1998 Edition

INSTRUMENT FOR MIDDLE SCHOOL APPRAISAL

by
Harold L. Hawkins, Ed.D.
and
H. Edward Lilley, Ph.D.

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Directions for Appraising Facilities

Middle School Appraisal

Prior to evaluating a building, the appraiser should become familiar with the educational program provided within the existing school facility. It is essential also to determine other pertinent factors about the facility which will provide background information sufficient to insure a thorough and accurate appraisal. Particularly helpful are the building's architectural plans, specifications and layout, if these are available. If possible, the school plant should be appraised at a time when school is in session so that the actual use of the building is more apparent.

Although the Appraisal Guide is designed for individual appraiser use, ideally the school facility should be evaluated at the same time by three to five appraisers. The ratings by each of the appraisers should then be used to arrive at a consensus for each item. The final rating is the result of careful review of the individual scores.

The instrument uses an additive scoring method, with each item having a maximum number of allowable points. A total of 1000 points is distributed among these six major categories:

Section		Maximum Points
1.0	The School Site	100
2.0	Structural and Mechanical Features	200
3.0	Plant Maintainability	100
4.0	School Building Safety and Security	200
5.0	Educational Adequacy	200
6.0	Environment for Education	200

Prior to Appraisal

Step I

Review the educational program; identify the number of faculty members and students; and examine the floor and plot plans carefully.

Overview of the Building and Grounds

Step II

Upon approach to the site look for traffic patterns, school safety signs, neighborhood environment, etc. Begin the appraisal by taking a preliminary tour of the entire building noting both exterior and interior features. Information obtained prior to arrival at the campus recorded in the Building Data Record should be verified. The appraisal weights should not be determined during this initial walk through. The appraisal is better accomplished as separate individual steps in the process.

Assignment of Scores

Step III

After the completion of the preliminary inspection, go through the entire instrument section by section. The appraisal will be more accurate if each item is carefully considered while it is appropriately observed. **Do not try to evaluate from memory** — use actual observation when making the appraisal decision.

Items that are needed/required but are non-existent should be given a 0 score. If an item is not needed and is non-existent full credit should be allowed.

Note the Table of Weights for assistance in determining the score to be given each item. Each item should first be considered in the following terms: Non-Existent, Very Inadequate, Poor, Borderline, Satisfactory, and Excellent. The weight (score) should then be assigned for that item.

Place score in space provided in the Points Allotted Column, total the score for each Section and insert in the space provided. The Section totals should then be tabulated and indicated in the Points Assigned column of the Appraisal Summary. Use the space provided in the Justification for Allocation of Points to provide notes justifying the scores at the extreme ends of the scale (e.g. very inadequate, or excellent.)

Building Data Record

Name of Appraiser _____ Date of Appraisal _____

Building Name _____

Street Address _____

City/Town, State, Zip Code _____

Telephone Number(s) _____

School District _____

Setting: ❑ Urban ❑ Suburban ❑ Small City ❑ Rural

Site-Acreage _____ Building Square Footage _____

Grades Housed _____ Student Capacity _____

Number of Teaching Stations _____ Number of Floors _____

Student Enrollment _____ As Of _____

Dates of Construction _____

Energy Sources: ❑ Fuel Oil ❑ Gas ❑ Electric ❑ Solar

Air Conditioning: ❑ Roof Top ❑ Window Units ❑ Central ❑ Room Units

Heating: ❑ Central ❑ Roof Top ❑ Room Units
❑ Forced Air ❑ Steam ❑ Hot Water

Type of Construction: ❑ Load Bearing Masonry ❑ Steel Frame ❑ Concrete Frame ❑ Wood
❑ Other _____

Exterior Surfacing: ❑ Brick ❑ Stucco ❑ Metal ❑ Wood
❑ Other _____

Floor Construction: ❑ Wood Joists ❑ Steel Joists ❑ Slab on Grade ❑ Structural Slab
❑ Other _____

Appraisal Guide for School Facilities

Table of Weights and Categories

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10
15	0	3	6	9	12	15
20	0	4	8	12	16	20
25	0	5	10	15	20	25

Appraisal Summary

SECTION	POSSIBLE POINTS	TOTAL EARNED	PERCENT	RATING BY CATEGORY
1.0 The School Site	100			
2.0 Structural and Mechanical	200			
3.0 Plant Maintainability	100			
4.0 School Building Safety & Security	200			
5.0 Educational Adequacy	200			
6.0 Environment for Education	200			
TOTAL	1,000			

1.0 The School Site

100 Points

1.1	**Site is large enough** to meet present and future educational needs as defined by state and local requirements.	25	
1.2	**Site is easily accessible** and conveniently located for the present and future population.	20	
1.3	**Location** is removed from undesirable business, industry, traffic, and natural hazards.	10	
1.4	Site is **well landscaped and developed** to meet educational needs.	10	
1.5	Well equipped **athletic and intramural areas are separated** from streets and parking areas.	10	
1.6	**Topography** is varied enough to provide desirable appearance and without steep inclines.	5	
1.7	Site has stable, well drained **soil free of erosion.**	5	
1.8	Site is suitable for **special instructional needs**, e.g. outdoor learning.	5	
1.9	**Pedestrian services** include adequate sidewalks with designated cross-walks, curb cuts, and correct slopes.	5	
1.10	Sufficient **on-site, solid surface parking** is provided for faculty, staff and community.	5	
	TOTAL — THE SCHOOL SITE	100	

Table of Weights and Categories

Assessment Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Deficient 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10
20	0	4	8	12	16	20
25	0	5	10	15	20	25

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2.0 Structural and Mechanical Features

200 Points

STRUCTURAL

2.1	Structure meets all **barrier-free** requirements both externally and internally.	15	
2.2	**Roofs** appear sound, have positive drainage, and are weather tight.	15	
2.3	**Foundations** are strong and stable with no observable cracks.	10	
2.4	**Exterior and interior walls** have sufficient expansion joints and are free of deterioration.	10	
2.5	**Entrances and exits** are located so as to permit efficient student traffic flow.	10	
2.6	**Building "envelope"** generally provides for energy conservation. (See criteria)	10	
2.7	Structure is **free of friable asbestos** and **toxic materials**.	10	
2.8	Interior walls permit sufficient **flexibility** for a variety of class sizes.	10	

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
10	0	2	4	6	8	10
15	0	3	6	9	12	15

MECHANICAL/ELECTRICAL

2.9	**Adequate light sources** are well maintained, properly placed and are not subject to overheating.	15	
2.10	**Internal water supply** is adequate with sufficient pressure to meet health and safety requirements.	15	
2.11	Each teaching/learning area has adequate convenient **wall outlets**, phone and computer cabling for **technology applications.**	15	
2.12	**Electrical controls** are safely protected with **disconnect switches** easily accessible.	10	
2.13	**Drinking fountains** are adequate in number and placement, and are properly maintained including provisions for the disabled.	10	
2.14	Number and size of **restrooms meet requirements**.	10	
2.15	**Drainage systems** are properly maintained and meet requirements.	10	
2.16	**Fire alarms, smoke detectors, and sprinkler systems** are properly maintained and meet requirements.	10	
2.17	**Intercommunication system** consists of a central unit that allows dependable **two-way communication** between the office and instructional areas.	10	
2.18	**Exterior water supply** is sufficient and available for normal usage.	5	

TOTAL — STRUCTURAL AND MECHANICAL FEATURES

200

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10
15	0	3	6	9	12	15

3.0 Plant Maintainability

100 Points

3.1	**Exterior windows, doors, and walls** are of material and finish requiring minimum maintenance.	15	
3.2	**Floor surfaces** throughout the building require minimum care.	15	
3.3	**Ceilings and walls** throughout the building, including service areas, are easily cleaned and resistant to stain.	10	
3.4	**Built-in equipment** is designed and constructed for ease of maintenance.	10	
3.5	**Finishes and hardware,** with a compatible keying system, are of durable quality.	10	
3.6	**Restroom fixtures** are wall mounted and of quality finish.	10	
3.7	Adequate **custodial storage space** with water and drain is accessible throughout the building.	10	
3.8	Adequate **electrical outlets and power,** to permit routine cleaning, are available in every area.	10	
3.9	**Outdoor light fixtures, electric outlets,** equipment, and other fixtures are accessible for repair and replacement.	10	
	TOTAL — PLANT MAINTAINABILITY	100	

Table of Weights and Categories

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
10	0	2	4	6	8	10
15	0	3	6	9	12	15

4.0 Building Safety and Security

200 Points

SITE SAFETY

4.1	**Student loading areas** are segregated from other vehicular traffic and pedestrian walkways.	15	
4.2	**Walkways,** both on and offsite, are available for safety of pedestrians.	10	
4.3	**Access streets** have sufficient signals and signs to permit safe entrance to and exit from school area.	5	
4.4	**Vehicular entrances and exits** permit safe traffic flow.	5	
4.5	Locations and types of **intramural equipment** are free from hazard.	5	

BUILDING SAFETY

4.6	The **heating unit(s)** is located away from student occupied areas.	20	
4.7	Multi-story buildings have at least **two stairways** for student egress.	15	
4.8	**Exterior doors** open outward and are equipped with panic hardware.	10	
4.9	**Emergency lighting** is provided throughout the building with exit signs on separate electrical circuits.	10	
4.10	**Classroom doors** are recessed and open outward.	10	
4.11	**Building security systems** are provided to assure uninterrupted operation of the educational program.	10	

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10
15	0	3	6	9	12	15
20	0	4	8	12	16	20

4.12	**Flooring** (including ramps and stairways) is maintained in a nonslip condition.	5	
4.13	**Stairs** (interior and exterior) meet standards (maximum 7"rise to 11" tread) and steps range in number from 3 - 16.	5	
4.14	**Glass** is properly located and protected with wire or safety material to prevent accidental student injury.	5	
4.15	**Fixed projections** in the traffic areas do not extend more than eight inches from the corridor wall.	5	
4.16	**Traffic areas** terminate at an exit or a stairway leading to an egress.	5	

EMERGENCY SAFETY

4.17	Adequate **fire safety equipment** is properly located.	15	
4.18	There are at least **two independent exits** from any point in the building.	15	
4.19	**Fire-resistant materials** are used throughout the structure.	15	
4.20	Automatic and manual **emergency alarm system** with a distinctive sound and flashing light is provided.	15	

TOTAL — BUILDING SAFETY AND SECURIY

200	

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
15	0	3	6	9	12	15

5.0 Educational Adequacy

200 Points

ACADEMIC LEARNING SPACE

5.1	**Size of academic learning areas** meets desirable standards.	15	
5.2	**Classroom space** permits arrangements for small group activity.	10	
5.3	**Location of academic learning areas** is near related educational activities and away from disruptive noises.	10	
5.4	**Personal space** in the classroom away from group instruction allows privacy time for individual students.	5	
5.5	**Storage for student materials** is adequate.	5	
5.6	**Storage for teacher materials** is adequate.	5	

SPECIALIZED LEARNING SPACE

5.7	**Size of specialized learning area(s)** meets standards.	15	
5.8	**Design of specialized learning area(s)** is compatible with instructional need.	10	
5.9	**Library/Resource/Media Center** provides appropriate and attractive space.	15	
5.10	**Gymnasium and outdoor facilities** adequately serve physical education instruction.	10	
5.11	**Science** program is provided sufficent space and equipment.	10	
5.12	**Music Program** is provided adequate sound-treated space.	10	

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	0	1	2	3	4	5
10	0	2	4	6	8	10
15	0	3	6	9	12	15
25	0	5	10	15	20	25

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5.13	**Space for art** is appropriate for instruction, supplies, and equipment.	10	
5.14	**Space for technology education** permits use of state-of-the-art equipment.	10	
5.15	Space for **small groups and remedial instruction** is provided adjacent to classrooms.	5	
5.16	**Storage for student and teacher material** is adequate.	5	

SUPPORT SPACE

5.17	**Teachers' lounge and work areas** support teachers as professionals.	10	
5.18	**Cafeteria/Kitchen** is attractive with sufficient space for seating/dining, delivery, storage, and food preparation.	10	
5.19	**Administrative offices** are consistent in appearance and function with the maturity of the students served.	10	
5.20	**Counselor's office** insures privacy and sufficient storage.	5	
5.21	**Clinic** is near administrative offices and is equipped to meet requirements.	5	
5.22	**Suitable reception space** is available for students, teachers, and visitors.	5	
5.23	**Administrative personnel** are provided sufficient work space and privacy.	5	

TOTAL — EDUCATIONAL ADEQUACY

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10

6.0 Environment for Education

200 Points

EXTERIOR ENVIRONMENT

6.1	Overall **design is aesthetically pleasing** and appropriate for the age of students.	15	
6.2	Site and building are **well landscaped**.	10	
6.3	**Exterior noise and surrounding environment** do not disrupt learning.	10	
6.4	**Entrances and walkways are sheltered** from sun and inclement weather.	10	
6.5	**Building materials** provide attractive color and texture.	5	

INTERIOR ENVIRONMENT

6.6	**Color schemes, building materials, and decor** provide an impetus to learning.	20	
6.7	**Year around comfortable temperature and humidity** are provided throughout the building.	15	
6.8	**Ventilating system** provides adequate quiet circulation of clean air and meets 15cfm VBC requirement.	15	
6.9	**Lighting system** provides proper intensity, diffusion, and distribution of illumination.	15	
6.10	**Sufficient drinking fountains and restroom facilities** are conveniently located.	15	
6.11	**Communication among students** is enhanced by commons area.	10	

Maximum Points Allotted	Non-Existent	Very Inadequate 1-25%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10
15	0	3	6	9	12	15
20	0	4	8	12	16	20

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6.12	**Traffic flow** is aided by appropriate foyers and corridors.	10	
6.13	**Areas for students to interact** are suitable to the age group.	10	
6.14	**Large group areas** are designed for effective management of students.	10	
6.15	**Acoustical treatment** of ceilings, walls, and floors provides effective sound control.	10	
6.16	**Window design** contributes to a pleasant environment.	10	
6.17	**Furniture and equipment** provide a pleasing atmosphere.	10	
	TOTAL — ENVIRONMENT FOR EDUCATION	200	

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
10	0	2	4	6	8	10

Justification for Allocation of Points

BUILDING NAME AND LEVEL:

_____

Indicate the justification for the appraisal decision in the space provided.

BUILDING FEATURES THAT CLEARLY EXCEED CRITERIA:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

BUILDING FEATURES THAT ARE NON-EXISTENT OR VERY INADEQUATE:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

DATE OF APPRAISAL: _____

NAME OF SCHOOL: _____

NAME OF APPRAISERS: _____

_____

_____

_____

_____

Guide for School Facility Appraisal

1998 Edition

INSTRUMENT FOR HIGH SCHOOL APPRAISAL

by
Harold L. Hawkins, Ed.D.
and
H. Edward Lilley, Ph.D.

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Directions for Appraising Facilities

High School Appraisal

Prior to evaluating a building, the appraiser should become familiar with the educational program provided within the existing school facility. It is essential also to determine other pertinent factors about the facility which will provide background information sufficient to insure a thorough and accurate appraisal. Particularly helpful are the building's architectural plans, specifications and layout, if these are available. If possible, the school plant should be appraised at a time when school is in session so that the actual use of the building is more apparent.

Although the Appraisal Guide is designed for individual appraiser use, ideally the school facility should be evaluated at the same time by three to five appraisers. The ratings by each of the appraisers should then be used to arrive at a consensus for each item. The final rating is the result of careful review of the individual scores.

The instrument uses an additive scoring method, with each item having a maximum number of allowable points. A total of 1000 points is distributed among these six major categories:

Section		Maximum Points
1.0	The School Site	100
2.0	Structural and Mechanical Features	200
3.0	Plant Maintainability	100
4.0	School Building Safety and Security	200
5.0	Educational Adequacy	200
6.0	Environment for Education	200

Prior to Appraisal

Step I

Review the educational program; identify the number of faculty members and students; and examine the floor and plot plans carefully.

Overview of the Building and Grounds

Step II

Upon approach to the site look for traffic patterns, school safety signs, neighborhood environment, etc. Begin the appraisal by taking a preliminary tour of the entire building noting both exterior and interior features. Information obtained prior to arrival at the campus recorded in the Building Data Record should be verified. The appraisal weights should not be determined during this initial walk through. The appraisal is better accomplished as separate individual steps in the process.

Assignment of Scores

Step III

After the completion of the preliminary inspection, go through the entire instrument section by section. The appraisal will be more accurate if each item is carefully considered while it is appropriately observed. **Do not try to evaluate from memory** — use actual observation when making the appraisal decision.

Items that are needed/required but are non-existent should be given a 0 score. If an item is not needed and is non-existent full credit should be allowed.

Note the Table of Weights for assistance in determining the score to be given each item. Each item should first be considered in the following terms: Non-Existent, Very Inadequate, Poor, Borderline, Satisfactory, and Excellent. The weight (score) should then be assigned for that item.

Place score in space provided in the Points Allotted Column, total the score for each Section and insert in the space provided. The Section totals should then be tabulated and indicated in the Points Assigned column of the Appraisal Summary. Use the space provided in the Justification for Allocation of Points to provide notes justifying the scores at the extreme ends of the scale (e.g. very inadequate, or excellent.)

Building Data Record

Name of Appraiser _____ Date of Appraisal _____

Building Name _____

Street Address _____

City/Town, State, Zip Code _____

Telephone Number(s) _____

School District _____

Setting: ❑ Urban ❑ Suburban ❑ Small City ❑ Rural

Site-Acreage _____ Building Square Footage _____

Grades Housed _____ Student Capacity _____

Number of Teaching Stations _____ Number of Floors _____

Student Enrollment _____ As Of _____

Dates of Construction _____

Energy Sources: ❑ Fuel Oil ❑ Gas ❑ Electric ❑ Solar

Air Conditioning: ❑ Roof Top ❑ Window Units ❑ Central ❑ Room Units

Heating: ❑ Central ❑ Roof Top ❑ Room Units
❑ Forced Air ❑ Steam ❑ Hot Water

Type of Construction: ❑ Load Bearing Masonry ❑ Steel Frame ❑ Concrete Frame ❑ Wood
❑ Other _____

Exterior Surfacing: ❑ Brick ❑ Stucco ❑ Metal ❑ Wood
❑ Other _____

Floor Construction: ❑ Wood Joists ❑ Steel Joists ❑ Slab on Grade ❑ Structural Slab
❑ Other _____

Appraisal Guide for School Facilities

Table of Weights and Categories

Maximum Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
10	0	2	4	6	8	10
15	0	3	6	9	12	15
20	0	4	8	12	16	20
25	0	5	10	15	20	25

Appraisal Summary

SECTION	POSSIBLE POINTS	TOTAL EARNED	PERCENT	RATING BY CATEGORY
1.0 The School Site	100			
2.0 Structural and Mechanical	200			
3.0 Plant Maintainability	100			
4.0 School Building Safety & Security	200			
5.0 Educational Adequacy	200			
6.0 Environment for Education	200			
TOTAL	1,000			

1.0 The School Site

100 Points

1.1	**Site is large enough** to meet present and future educational needs as defined by state and local requirements.	25	
1.2	**Site is easily accessible** and conveniently located for the present and future population.	20	
1.3	**Location** is removed from undesirable business, industry, traffic, and natural hazards.	10	
1.4	Site is **well landscaped and developed** to meet educational needs.	10	
1.5	Well equipped **athletic areas** are adequate with sufficient solid-surface parking.	10	
1.6	**Topography** is varied enough to provide desirable appearance and without steep inclines.	5	
1.7	Site has stable, well drained **soil free of erosion.**	5	
1.8	Site is suitable for **special instructional needs**, e.g. outdoor learning.	5	
1.9	**Pedestrian services** include adequate sidewalks with designated cross-walks, curb cuts, and correct slopes.	5	
1.10	Sufficient **on-site, solid surface parking** is provided for faculty, students, staff and community.	5	
	TOTAL — THE SCHOOL SITE	100	

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20	0	4	8	12	16	20
25	0	5	10	15	20	25

2.0 Structural and Mechanical Features

200 Points

STRUCTURAL

2.1	Structure meets all **barrier-free** requirements both externally and internally.	15	
2.2	**Roofs** appear sound, have positive drainage, and are weather tight.	15	
2.3	**Foundations** are strong and stable with no observable cracks.	10	
2.4	**Exterior and interior walls** have sufficient expansion joints and are free of deterioration.	10	
2.5	**Entrances and exits** are located so as to permit efficient student traffic flow.	10	
2.6	**Building "envelope"** generally provides for energy conservation. (See criteria)	10	
2.7	Structure is **free of friable asbestos** and **toxic materials**.	10	
2.8	Interior walls permit sufficient **flexibility** for a variety of class sizes.	10	

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MECHANICAL/ELECTRICAL

2.9	**Adequate light sources** are well maintained, properly placed and are not subject to overheating.	15	
2.10	**Internal water supply** is adequate with sufficient pressure to meet health and safety requirements.	15	
2.11	Each teaching/learning area has adequate convenient **wall outlets**, phone and computer cabling for **technology applications.**	15	
2.12	**Electrical controls** are safely protected with **disconnect switches** easily accessible.	10	
2.13	**Drinking fountains** are adequate in number and placement, and are properly maintained including provisions for the disabled.	10	
2.14	Number and size of **restrooms meet requirements**.	10	
2.15	**Drainage systems** are properly maintained and meet requirements.	10	
2.16	**Fire alarms, smoke detectors, and sprinkler systems** are properly maintained and meet requirements.	10	
2.17	**Intercommunication system** consists of a central unit that allows dependable **two-way communication** between the office and instructional areas.	10	
2.18	**Exterior water supply** is sufficient and available for normal usage.	5	

TOTAL — STRUCTURAL AND MECHANICAL FEATURES

200

Assessment Points Allotted	Non-Existent	Very Inadequate 1-29%	Poor 30-49%	Borderline 50-69%	Satisfactory 70-89%	Excellent 90-100%
5	0	1	2	3	4	5
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15	0	3	6	9	12	15

3.0 Plant Maintainability

100 Points

3.1	**Exterior windows, doors, and walls** are of material and finish requiring minimum maintenance.	15	
3.2	**Floor surfaces** throughout the building require minimum care.	15	
3.3	**Ceilings and walls** throughout the building, including service areas, are easily cleaned and resistant to stain.	10	
3.4	**Built-in equipment** is designed and constructed for ease of maintenance.	10	
3.5	**Finishes and hardware,** with a compatible keying system, are of durable quality.	10	
3.6	**Restroom fixtures** are wall mounted and of quality finish.	10	
3.7	Adequate **custodial storage space** with water and drain is accessible throughout the building.	10	
3.8	Adequate **electrical outlets and power,** to permit routine cleaning, are available in every area.	10	
3.9	**Outdoor light fixtures, electric outlets**, equipment, and other fixtures are accessible for repair and replacement.	10	
	TOTAL — PLANT MAINTAINABILITY	100	

Table of Weights and Categories

10	0	2	4	6	8	10
15	0	3	6	9	12	15

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4.0 Building Safety and Security

200 Points

SITE SAFETY

4.1	**Student loading areas** are segregated from other vehicular traffic and pedestrian walkways.	15	
4.2	**Walkways,** both on and offsite, are available for safety of pedestrians.	10	
4.3	**Access streets** have sufficient signals and signs to permit safe entrance to and exit from school area.	5	
4.4	**Vehicular entrances and exits** permit safe traffic flow.	5	
4.5	**Athletic field equipment** is properly located and is free from hazard.	5	

BUILDING SAFETY

4.6	The **heating unit(s)** is located away from student occupied areas.	20	
4.7	Multi-story buildings have at least **two stairways** for student egress.	15	
4.8	**Exterior doors** open outward and are equipped with panic hardware.	10	
4.9	**Emergency lighting** is provided throughout the building with exit signs on separate electrical circuits.	10	
4.10	**Classroom doors** are recessed and open outward.	10	
4.11	**Building security systems** are provided to assure uninterrupted operation of the educational program.	10	

Table of Weights and Categories

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	0	1	2	3	4	5
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4.12	**Flooring** (including ramps and stairways) is maintained in a nonslip condition.	5	
4.13	**Stairs** (interior and exterior) meet standards (maximum 7"rise to 11" tread) and steps range in number from 3 - 16.	5	
4.14	**Glass** is properly located and protected with wire or safety material to prevent accidental student injury.	5	
4.15	**Fixed projections** in the traffic areas do not extend more than eight inches from the corridor wall.	5	
4.16	**Traffic areas** terminate at an exit or a stairway leading to an egress.	5	

EMERGENCY SAFETY

4.17	Adequate **fire safety equipment** is properly located.	15	
4.18	There are at least **two independent exits** from any point in the building.	15	
4.19	**Fire-resistant materials** are used throughout the structure.	15	
4.20	Automatic and manual **emergency alarm system** with a distinctive sound and flashing light is provided.	15	
	TOTAL — BUILDING SAFETY AND SECURIY	200	

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5.0 Educational Adequacy

200 Points

ACADEMIC LEARNING SPACE

5.1	**Size of academic learning areas** meets desirable standards.	10	
5.2	**Classroom space** permits arrangements for small group activity.	10	
5.3	**Location of academic learning areas** is near related educational activities and away from disruptive noises.	10	
5.4	**Personal space** in the classroom away from group instruction allows privacy time for individual students.	5	
5.5	**Storage for student materials** is adequate.	5	
5.6	**Storage for teacher materials** is adequate.	5	

SPECIALIZED LEARNING SPACE

5.7	**Size of specialized learning area(s)** meets standards.	15	
5.8	**Design of specialized learning area(s)** is compatible with instructional need.	10	
5.9	**Library/Resource/Media Center** provides appropriate and attractive space.	15	
5.10	**Gymnasium and outdoor facilities** adequately serve physical education instruction.	15	
5.11	**Science** program is provided sufficent space and equipment.	10	
5.12	**Music Program** is provided adequate sound-treated space.	10	

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5.13	**Space for art** is appropriate for instruction, supplies, and equipment.	10	
5.14	**Space for technology education** permits use of state-of-the-art equipment.	10	
5.15	Space for **small groups and remedial instruction** is provided adjacent to classrooms.	5	
5.16	**Storage for student and teacher material** is adequate.	5	

SUPPORT SPACE

5.17	**Teachers' lounge and work areas** support teachers as professionals.	10	
5.18	**Cafeteria/Kitchen** is attractive with sufficient space for seating/dining, delivery, storage, and food preparation.	10	
5.19	**Administrative offices** are consistent in appearance and function with the maturity of the students served.	10	
5.20	**Counselor's office** insures privacy and sufficient storage.	5	
5.21	**Clinic** is near administrative offices and is equipped to meet requirements.	5	
5.22	**Suitable reception space** is available for students, teachers, and visitors.	5	
5.23	**Administrative personnel** are provided sufficient work space and privacy.	5	

TOTAL — EDUCATIONAL ADEQUACY

200	

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6.0 Environment for Education

200 Points

EXTERIOR ENVIRONMENT

6.1	Overall **design is aesthetically pleasing** and appropriate for the age of students.	15	
6.2	Site and building are **well landscaped**.	10	
6.3	**Exterior noise and surrounding environment** do not disrupt learning.	10	
6.4	**Entrances and walkways are sheltered** from sun and inclement weather.	10	
6.5	**Building materials** provide attractive color and texture.	5	

INTERIOR ENVIRONMENT

6.6	**Color schemes, building materials, and decor** provide an impetus to learning.	20	
6.7	**Year around comfortable temperature and humidity** are provided throughout the building.	15	
6.8	**Ventilating system** provides adequate quiet circulation of clean air and meets 15cfm VBC requirement.	15	
6.9	**Lighting system** provides proper intensity, diffusion, and distribution of illumination.	15	
6.10	**Sufficient drinking fountains and restroom facilities** are conveniently located.	15	
6.11	**Communication among students** is enhanced by commons area.	10	

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6.12	**Traffic flow** is aided by appropriate foyers and corridors.	10	
6.13	**Areas for students to interact** are suitable to the age group.	10	
6.14	**Large group areas** are designed for effective management of students.	10	
6.15	**Acoustical treatment** of ceilings, walls, and floors provides effective sound control.	10	
6.16	**Window design** contributes to a pleasant environment.	10	
6.17	**Furniture and equipment** provide a pleasing atmosphere.	10	
	TOTAL — ENVIRONMENT FOR EDUCATION	200	

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Justification for Allocation of Points

BUILDING NAME AND LEVEL:

_____

Indicate the justification for the appraisal decision in the space provided.

BUILDING FEATURES THAT CLEARLY EXCEED CRITERIA:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

BUILDING FEATURES THAT ARE NON-EXISTENT OR VERY INADEQUATE:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

DATE OF APPRAISAL: _____

NAME OF SCHOOL : _____

NAME OF APPRAISERS : _____

_____

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_____